

Instruction Book
for
ARC Type T-27A
VHF Transmitter



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for
ARC Type T-27A
VHF Transmitter



Aircraft Radio Corporation
BOONTON, NEW JERSEY

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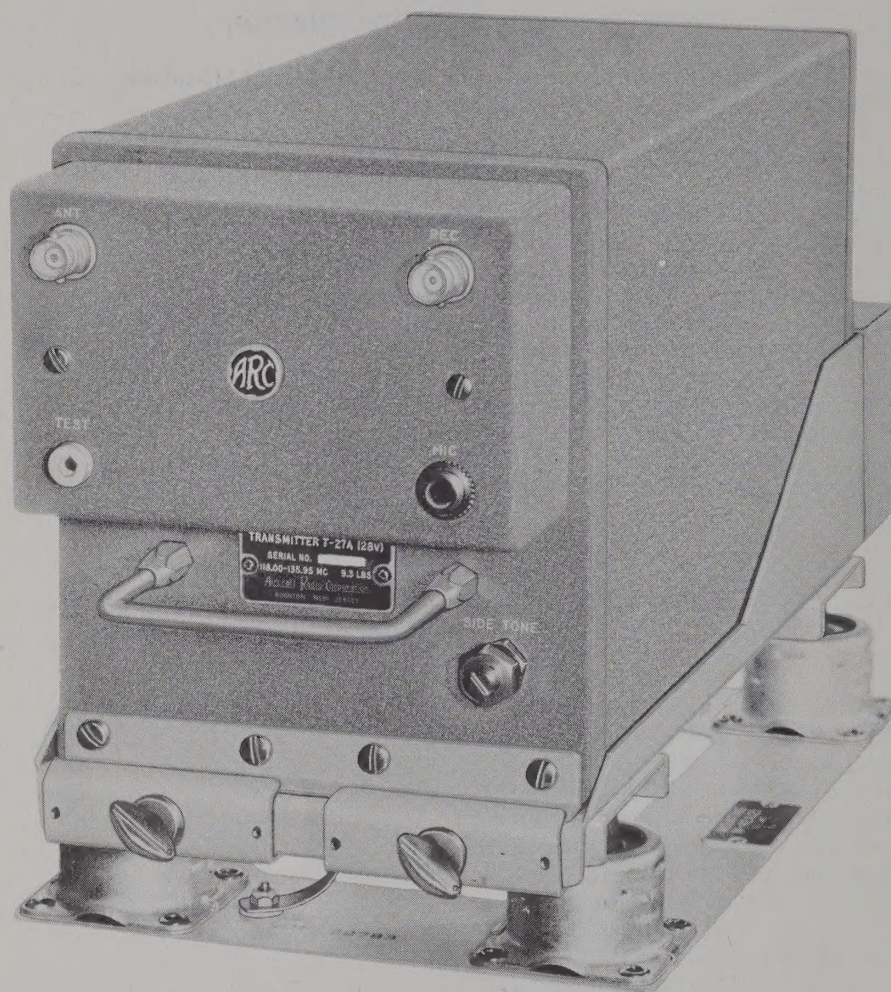


Figure 1-1. ARC Type T-27A VHF Transmitter and ARC Type M-42A(2) Mounting

SECTION I

GENERAL INFORMATION

1-1. INTRODUCTION.

This instruction book contains installation, operation, maintenance, and parts information for the ARC Type T-27A VHF Transmitter (see Figure 1-1). Information is also included for the ARC Type M-42A(2) Mounting, C-82A Control Unit, CC-10A Custom Control Unit, and A-25A Antenna.

1-2. PURPOSE.

The T-27A Transmitter is an airborne, 360-channel, voice amplitude-modulated transmitter. The transmitter is electrically tuned and crystal-controlled, and covers the frequency range of 118.00 - 135.95 mc in 50-kc steps to provide a total of 360 channels.

1-3. SPECIFICATIONS.

Frequency:	118.00 - 135.95 mc
Number of Channels:	360
Channel Spacing:	50 kc
Channeling Time:	4 seconds, maximum
Input Power:	Standby: 1.1 amperes at 27.5 volts dc Transmit: 5.8 amperes at 27.5 volts dc
Input Impedance:	100 ohms
Output Power:	30 watts nominal
Output Impedance:	52 ohms
Duty Cycle:	1 minute on, 4 minutes off at 70°C ambient
Modulation:	High level. Adjustable to 95% with 1000-cps, 0.25-volt (rms) sine-wave input
Modulator Frequency Response:	Flat (± 3 db) from 350 to 3500 cps
Tuning:	Automatic, crystal-controlled. Eighteen crystals on megacycle drum; fundamental frequency range, 54.025 - 62.525 mc in 0.5-mc steps. Twenty crystals on fractional megacycle drum; frequency range, 9.950 - 10.900 mc, in 0.05-mc steps
Frequency Stability:	$\pm 0.007\%$
Spurious Emission:	At least 80 db below carrier
Sidetone:	Adjustable to 150 mw into 300 ohms

Tube Complement:	6021 Megacycle Crystal Oscillator and Doubler 5718 Fractional Megacycle Crystal Oscillator 6021 Fractional Megacycle Balanced Mixer 5840 R-f Amplifier 5686 R-f Driver Amplifier 5894 R-f Power Amplifier
Transistor Complement:	2N270 A-f Amplifier 2N375 } A-f Driver Amplifier 2N375 } 2N174 } A-f Power Amplifier 2N174 } 2N174 } Multivibrator 2N174 }
Mounting:	ARC Series 40 Mounting (for single-unit installation, use an ARC Type M-42A(2) Mounting)
Weight:	9.3 pounds; 11.4 pounds including M-42A(2) Mounting
Dimensions:	6-3/8 inches wide, 7-3/4 inches high, 14-7/16 inches long, including M-42A(2) Mounting
Certification:	FAA TSO C-37a, Category A

1-4. EQUIPMENT SUPPLIED.

The units and accessories supplied for a T-27A installation are listed in Table 1-1.

TABLE 1-1. EQUIPMENT SUPPLIED

Qty	Name	ARC Part No.
1	Transmitter, ARC Type T-27A	26640
1	Mounting, ARC Type M-42A(2)	27850
1	Connector Kit, consisting of:	22366
1	Connector, plug	21983
1	Plate Assembly	22287
6	Sems, fillister head, No. 4-40, 1/4 inch long, split lockwasher	524-0016
2	Screw, machine, flat head, No. 6-32, 1/4 inch long	146-0016
2	Stud, snapslide	22237
1	Screw, binding head, No. 6-32, 5/16 inch long	106-0020
2	Connector, coaxial (UG-88C/U)	11337
1	Control Unit, ARC Type C-82A ¹	21590
1	Connector, plug	16115
1	Washer, lock	8488
1	Nut	4041
1	Instruction Book	7010113

¹The C-82A is furnished with 28-volt pilot lamps installed and with 14-volt lamps as accessories. In place of a C-82A Control Unit, a custom control installation, with ARC Type CC-10A Custom Control Unit (ARC-24020) and a power on-off switch, may be used.

1-5. EQUIPMENT REQUIRED BUT NOT SUPPLIED.

The cable assemblies required for interconnecting the T-27A Transmitter and its associated units are not supplied. The cable assembly which connects to the rear of the M-42A(2) Mounting is fabricated from individual wires (not furnished) and the connector kit listed in Table 1-1. The antenna cable assemblies are fabricated from RG-58/U coaxial cable (not furnished) and are terminated at the T-27A and the antenna with the coaxial connectors listed in Table 1-1. In addition, the ARC items listed in Table 1-2, or their equivalents, are required for operation of the T-27A. Voltage-rated items should have the same rating as the T-27A (28 volts dc).

TABLE 1-2. EQUIPMENT REQUIRED BUT NOT SUPPLIED

Qty	Name	ARC Type No.	ARC Part No.
1	Antenna	A-25A	25060
AR	Cable, coaxial (RG-58/U)	-	11318(*) ¹
1	Microphone, carbon, single-button	-	11937

¹In place of asterisk, cable length in feet and inches is specified to complete part number.

1-6. DESCRIPTION.

Transmitter. The ARC Type T-27A VHF Transmitter is a 360-channel, crystal-controlled, voice amplitude-modulated transmitter designed for operation in the vhf frequency range of 118.00 - 135.95 mc. Electron tubes are used in the r-f stages of the transmitter; transistors are used in the modulator and power supply circuits (see Figure 1-2).

The T-27A employs a crystal-saving circuit which uses 38 crystals to produce 360 channels. The crystals are divided between two crystal drums: 18 crystals, which control the oscillator frequency of the megacycle oscillator-doubler, are mounted on a megacycle crystal drum; 20 crystals, which control the frequency of the fractional megacycle oscillator, are mounted on a fractional megacycle crystal drum. Any one of the available 360 channels is obtained by mixing the megacycle oscillator-doubler output with the output of the fractional megacycle oscillator. The megacycle crystals cover a range of 54.025 - 62.525 mc in 0.5-mc steps. The fractional megacycle crystals cover a frequency range of 9.950 - 10.900 mc in 0.05-mc steps.

The T-27A consists of transmitter assembly A1, power supply A2, modulator A3, and chassis assembly A4. Transmitter assembly A1 consists of an r-f assembly A1A1, a tuner assembly A1A2, and a gearing unit A1A3. R-f assembly A1A1 contains all of the r-f stages used in the transmitter. Tuner assembly A1A2 contains the binary switching circuits that are used with the gearing unit and an external control unit for channel selection. Gearing unit A1A3 consists of a motor and a speed-reduction gear train. The unit is installed on the tuner assembly through which it is mechanically coupled to the tuned circuits of the r-f assembly. The power supply and the modulator are plug-in, transistorized assemblies mounted on the chassis assembly.

R-f assembly A1A1 consists of a crystal-controlled oscillator-doubler, a crystal-controlled fractional megacycle oscillator, a balanced mixer, and three r-f amplifier stages. The oscillator-doubler generates frequencies of 108.050 mc - 125.050 mc in 1-mc steps. The fractional megacycle oscillator generates frequencies of 9.950 mc - 10.900 mc in 0.05-mc steps. The balanced mixer combines the output signals of the two oscillators to provide a 118.00 - 135.95-mc signal (the sum of the two oscillator frequencies) that is applied through the three r-f amplifiers to the transmitting antenna.

Tuning of the transmitter is accomplished by gearing unit A1A3 and tuner assembly A1A2 of the T-27A and an external control unit. A motor in the gearing unit is mechanically coupled through the crystal drums and the switching circuits of the tuner assembly to the various inductors and capacitors in the tuned circuits of the r-f assembly. Whenever the settings of the channel selector switches on the control unit are changed, an unbalanced condition is produced in the binary switching circuits of the tuner assembly, and the motor of the gearing unit is automatically energized. The motor drives the coupled parts until the positions required for operation on the new channel are obtained. When the coupled parts are positioned properly, the transmitter is adjusted correctly for operation on the newly selected channel, and the motor of the gearing unit is automatically deenergized.

Modulator A3 contains one low-current and two a-f power transistors. In addition to these transistors, two a-f power transistors mounted on chassis assembly A4 are used in the modulator circuits as the a-f power-output stage.

Power supply A2 consists of a 1-kc multivibrator circuit, two full-wave bridge-rectifier circuits, a half-wave rectifier circuit, and a 12.5-volt a-c filament circuit. The bridge rectifiers provide +280 volts and +380 volts dc to the tubes in the transmitter assembly; the half-wave rectifier provides -40-volt d-c bias voltage for the r-f power amplifier stage; and a separate secondary winding on the power transformer provides 12.5-volt a-c filament voltage for the r-f power amplifier stage. In addition to providing the +280-volt d-c operating voltage for the tubes of the T-27A, the +280-volt rectifier also applies B+ voltage to an associated communication or communication-navigation receiver.

All electrical connections for the T-27A are made through a receptacle, on the rear of the unit, which mates with a connector on the M-42A(2) Mounting or other ARC Series 40 Mounting.

The dust cover for the T-27A is secured to the chassis by a Dzus fastener. The dust cover is vented at the rear to insure adequate dissipation of the heat generated within the unit.

Mounting. The ARC Type M-42A(2) Mounting or other ARC Series 40 Mounting is used to shock-mount the T-27A Transmitter and to provide a means of making electrical connections to the unit. The T-27A is secured to the M-42A(2) Mounting by two adjustable flanges located at the front of the mounting. Two flexible metal straps located on the underside of the mounting are used to ground the T-27A and M-42A(2) to the airframe. Sixteen No. 6 screw holes are provided in the M-42A(2) for securing the mounting.

Note

If more than one T-27A is to be installed, or if a T-27A is to be installed with other ARC modular-type units, one of the multiple-unit ARC Series 40 Mountings may be used. For detailed information, refer to the instruction book for the ARC Series 40 Mountings.

C-82A Control Unit. The ARC Type C-82A Control Unit is an edge-lighted, plastic-panel control assembly designed for use in aircraft equipped with console mounting facilities. The C-82A contains a primary power on-off switch, and channel selector switches which are used to select the transmitting frequency. The megacycle channel selector switch is a geared, 18-position, printed-circuit, revolving drum assembly which controls the positioning of the megacycle crystal drum in the T-27A. The fractional megacycle channel selector switch is a 20-position, revolving drum assembly which controls the positioning of the fractional megacycle crystal drum in the T-27A. The selected frequency is indicated on the individual dials associated with each switch. Edge-lighting of the controls and panel designations is provided by two midget flange-base lamps installed in red-filter light assemblies on the plastic panel. All electrical connections to the C-82A are made through a receptacle located at the rear. The unit is secured by four Dzus fasteners on the front panel.

Note

In place of a C-82A Control Unit, an ARC Type CC-10A Custom Control Unit and a power on-off switch may be used.

Associated Units. The T-27A Transmitter may be used with an ARC Type R-34A Receiver, which is part of the ARC Type 15F VHF Navigation Equipment. The Type 15F is an airborne, 190-channel, navigation-communication radio receiving set with a frequency range of 108.00 - 126.90 megacycles. For additional information, refer to the instruction book for the ARC Type 15F VHF Navigation Equipment.

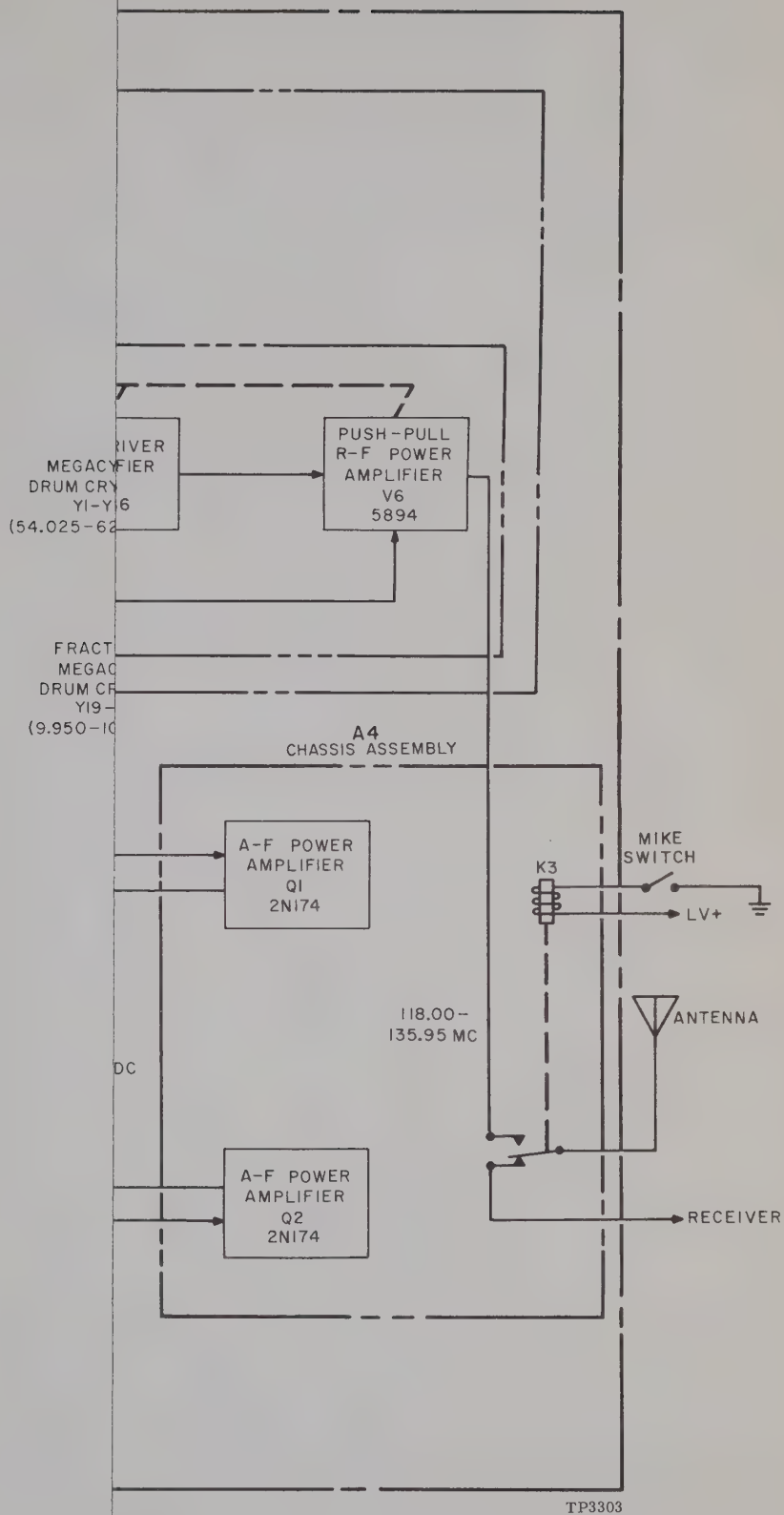


Figure 1-2. T-27A Transmitter,
Functional Block Diagram

All electrical connections for the T-27A are made through a receptacle, on the rear of the unit, which mates with a connector on the M-42A(2) Mounting or other ARC Series 40 Mounting.

The dust cover for the T-27A is secured to the chassis by a Dzus fastener. The dust cover is vented at the rear to insure adequate dissipation of the heat generated within the unit.

Mounting. The ARC Type M-42A(2) Mounting or other ARC Series 40 Mounting is used to shock-mount the T-27A Transmitter and to provide a means of making electrical connections to the unit. The T-27A is secured to the M-42A(2) Mounting by two adjustable flanges located at the front of the mounting. Two flexible metal straps located on the underside of the mounting are used to ground the T-27A and M-42A(2) to the airframe. Sixteen No. 6 screw holes are provided in the M-42A(2) for securing the mounting.

Note

If more than one T-27A is to be installed, or if a T-27A is to be installed with other ARC modular-type units, one of the multiple-unit ARC Series 40 Mountings may be used. For detailed information, refer to the instruction book for the ARC Series 40 Mountings.

C-82A Control Unit. The ARC Type C-82A Control Unit is an edge-lighted, plastic-panel control assembly designed for use in aircraft equipped with console mounting facilities. The C-82A contains a primary power on-off switch, and channel selector switches which are used to select the transmitting frequency. The megacycle channel selector switch is a geared, 18-position, printed-circuit, revolving drum assembly which controls the positioning of the megacycle crystal drum in the T-27A. The fractional megacycle channel selector switch is a 20-position, revolving drum assembly which controls the positioning of the fractional megacycle crystal drum in the T-27A. The selected frequency is indicated on the individual dials associated with each switch. Edge-lighting of the controls and panel designations is provided by two midget flange-base lamps installed in red-filter light assemblies on the plastic panel. All electrical connections to the C-82A are made through a receptacle located at the rear. The unit is secured by four Dzus fasteners on the front panel.

Note

In place of a C-82A Control Unit, an ARC Type CC-10A Custom Control Unit and a power on-off switch may be used.

Associated Units. The T-27A Transmitter may be used with an ARC Type R-34A Receiver, which is part of the ARC Type 15F VHF Navigation Equipment. The Type 15F is an airborne, 190-channel, navigation-communication radio receiving set with a frequency range of 108.00 - 126.90 megacycles. For additional information, refer to the instruction book for the ARC Type 15F VHF Navigation Equipment.

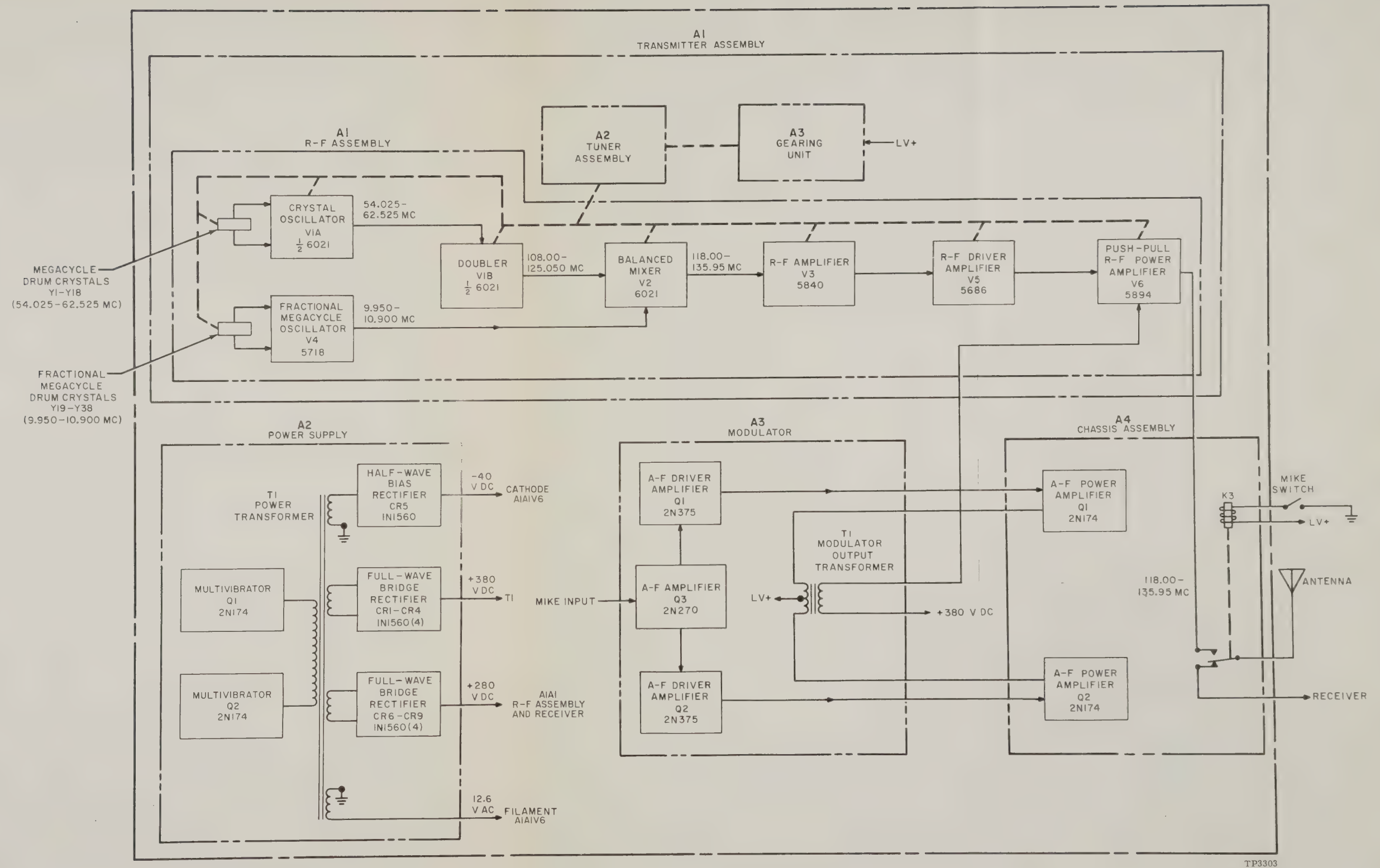


Figure 1-2. T-27A Transmitter,
Functional Block Diagram

SECTION II

INSTALLATION AND ADJUSTMENT

2-1. UNPACKING.

Remove all packing material from the packing case and carefully remove the equipment. Inspect the equipment for damage. Check the unit and its accessories against the packing slip to be sure all items have been received and removed from the packing case.

2-2. PREINSTALLATION TEST.

The T-27A has been tested and adjusted at the factory; however, a bench test should be performed before installation to insure that the unit was not damaged during shipment. Refer to Table 4-2 for the bench test procedure.

2-3. INSTALLATION REQUIREMENTS.

The following requirements are applicable to all installations of the T-27A:

Location of Units. Compare the installation areas under consideration with the applicable dimensions shown in Figures 2-1 through 2-7. Locate the T-27A in an area that is accessible for maintenance and inspection and in an area that is free from excessive vibration and heat. Do not run the interconnecting cable where it may be subjected to excessively high temperatures or where it may be inductively coupled to noise-generating equipment. Mount the control unit on the instrument panel within convenient view and reach of the operator.

Antenna. The T-27A requires a 50-ohm antenna such as the ARC Type A-25A Antenna. Mount the A-25A as far as possible from other antennas on the aircraft and, if possible, in an area on the centerline of the aircraft. Avoid running lead-in or guy wires near the antenna. Fabricate the cable assembly required to interconnect the T-27A and the A-25A as shown in Figure 2-6.

External Wiring. Figures 2-8 through 2-10 show the external wiring for three typical T-27A installations. The individual wires used to interconnect the T-27A and its associated units should be tied or laced to form an open-wire cable assembly. An open-wire cable is recommended because of its flexibility, ease of construction, and facility of repair. The ARC-21983 connector required for the cable is supplied, but the individual wires and other connectors are not. When the cable is fabricated, sufficient slack should be left to allow for removal of the T-27A from the mounting with the cable connected to the unit. The T-27A requires 28-volt d-c power. Connection to the power source should be made through a circuit-protective device.

2-4. INSTALLATION OF T-27A TRANSMITTER AND M-42A(2) MOUNTING.

The T-27A may be installed separately on an M-42A(2) Mounting, as described in the following procedure, or with other ARC modular units on an ARC Type M-43A or M-44A Mounting, as shown in the instruction book for ARC Series 40 Mountings. Installation dimensions for the T-27A installed on an M-42A(2) are shown in Figure 2-1. Connection of external wiring to the T-27A is accomplished with an ARC-21983 connector. This connector and its attaching hardware are part of Connector Kit ARC-22366 which is supplied with the T-27A. Wire the connector and install the M-42A(2) and T-27A as follows:

Step 1. Use the bottom plate of the M-42A(2) Mounting as a template to locate the mounting holes and drill the mounting surface for sixteen No. 6 binding head screws located as shown in Figure 2-1. The mounting surface should be clean, bare metal to insure proper grounding of the unit.

Step 2. Secure the M-42A(2) Mounting with binding head screws, lockwashers, and nuts.

Step 3. Remove the coupling box from the mounting. Remove the top cover from the coupling box (see Figure 2-2).

Step 4. Using the six ARC-524-0016 fillister head Sems screws furnished, attach the ARC-21983 Connector, in the low, inverted position, to the ARC-22287 Plate as shown in Figure 2-2.

Step 5. Cut the wires for the interconnecting cable assembly to the required lengths. Use color-coded wires or tag both ends to simplify interconnection and future maintenance.

Step 6. Bare and tin the ends of the cut wires.

Step 7. Solder the wires to the contacts supplied with Connector Kit ARC-22366. Do not get solder on the outside of the contacts.

Note

Contacts for letter-designated holes are larger than the contacts intended for number-designated holes. If desired, the connector may be used as a holding fixture by inserting the contacts part way before soldering.

Step 8. Loosen the right-hand coupling box cable clamp. Route the contacts and attached wires through the right-hand cable clamp. Insert the contacts in the appropriate connector holes (see Figures 2-8 through 2-10). Be sure that each contact is seated.

Note

To remove the contacts from the connector, use Contact Removing Tools ARC-22001 and ARC-22002.

Step 9. Arrange the wires with enough slack to prevent tension on the connector contacts when the cable clamp is tightened. Tighten the right-hand cable clamp.

Step 10. Hold ARC-22287 Plate in the position that places the ARC-21983 Connector in the low, inverted position. Attach the two ARC-22237 snapslide studs, two ARC-146-0016 flat-head screws, and the ARC-106-0020 binding head screw to the coupling box as shown in Figure 2-2. Place the coupling box on the rear of the M-42A(2) and secure the coupling box by engaging the two snapslide fasteners on the mounting with the snapslide studs on the coupling box.

Step 11. Loosen the thumbscrews on the front of the M-42A(2) and slide the T-27A in place so that the T-27A connector fully engages the mating connector on the coupling box. Secure the T-27A by engaging it with the clamps at the front of the mounting and tightening the thumbscrews. Safety-wire the thumbscrews in position.

Step 12. Fabricate an antenna cable assembly from a length of RG-58/U coaxial cable (not supplied) and two UG-88C/U connectors (supplied) as shown in Figure 2-6. Connect the cable assembly to the ANT connector on the front panel of the T-27A.

2-5. INSTALLATION OF C-82A CONTROL UNIT.

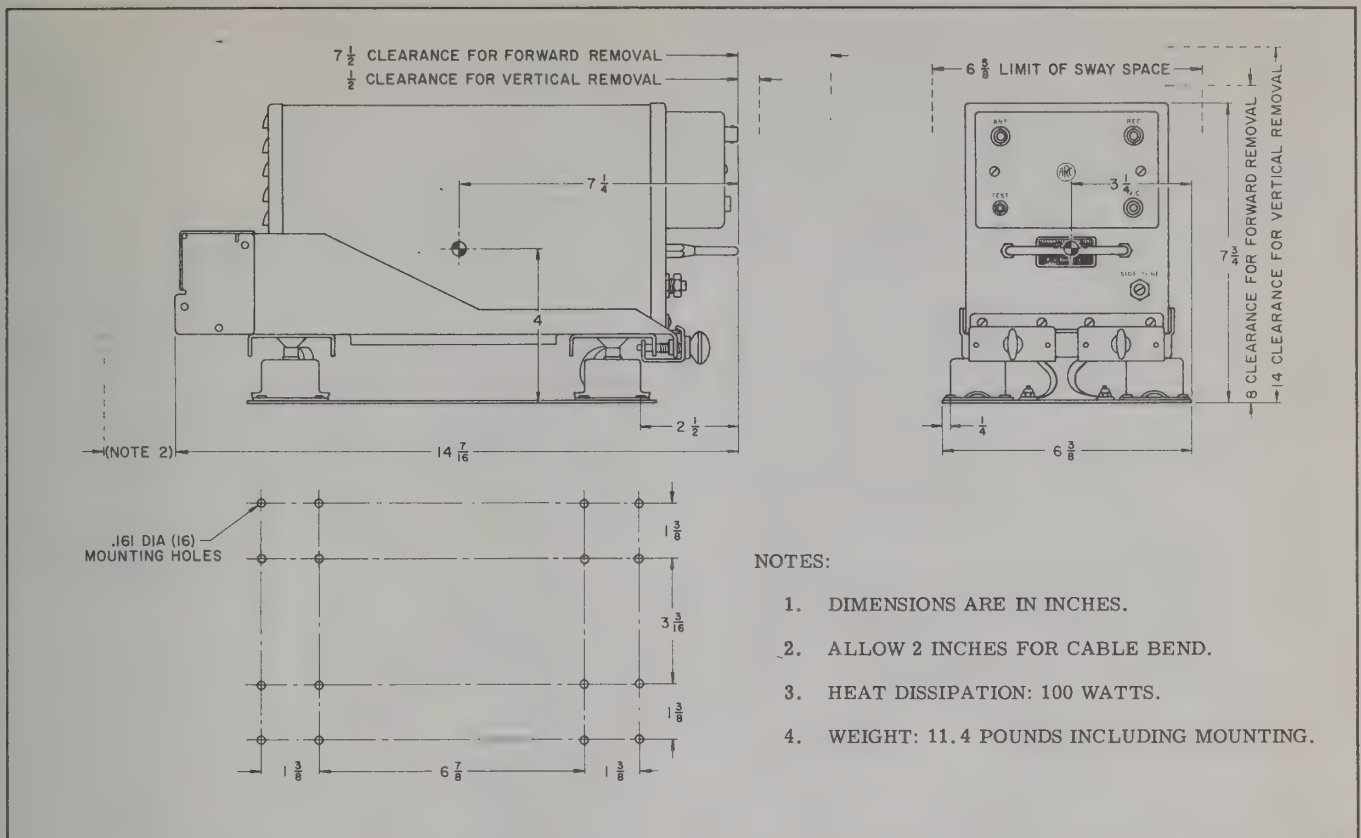
Outline dimensions for the C-82A Control Unit are shown in Figure 2-3. The unit is designed for installation on a standard console panel and is secured to the panel by four Dzus fasteners.

2-6. INSTALLATION OF CUSTOM CONTROL UNIT CC-10A.

The ARC Type CC-10A Custom Control Unit, and a power on-off switch, may be used with the T-27A in place of the C-82A Control Unit. Installation dimensions and assembly details for the CC-10A are shown in Figures 2-4 and 2-5, respectively. Figure 2-9 is the interconnection diagram for the T-27A and the CC-10A.

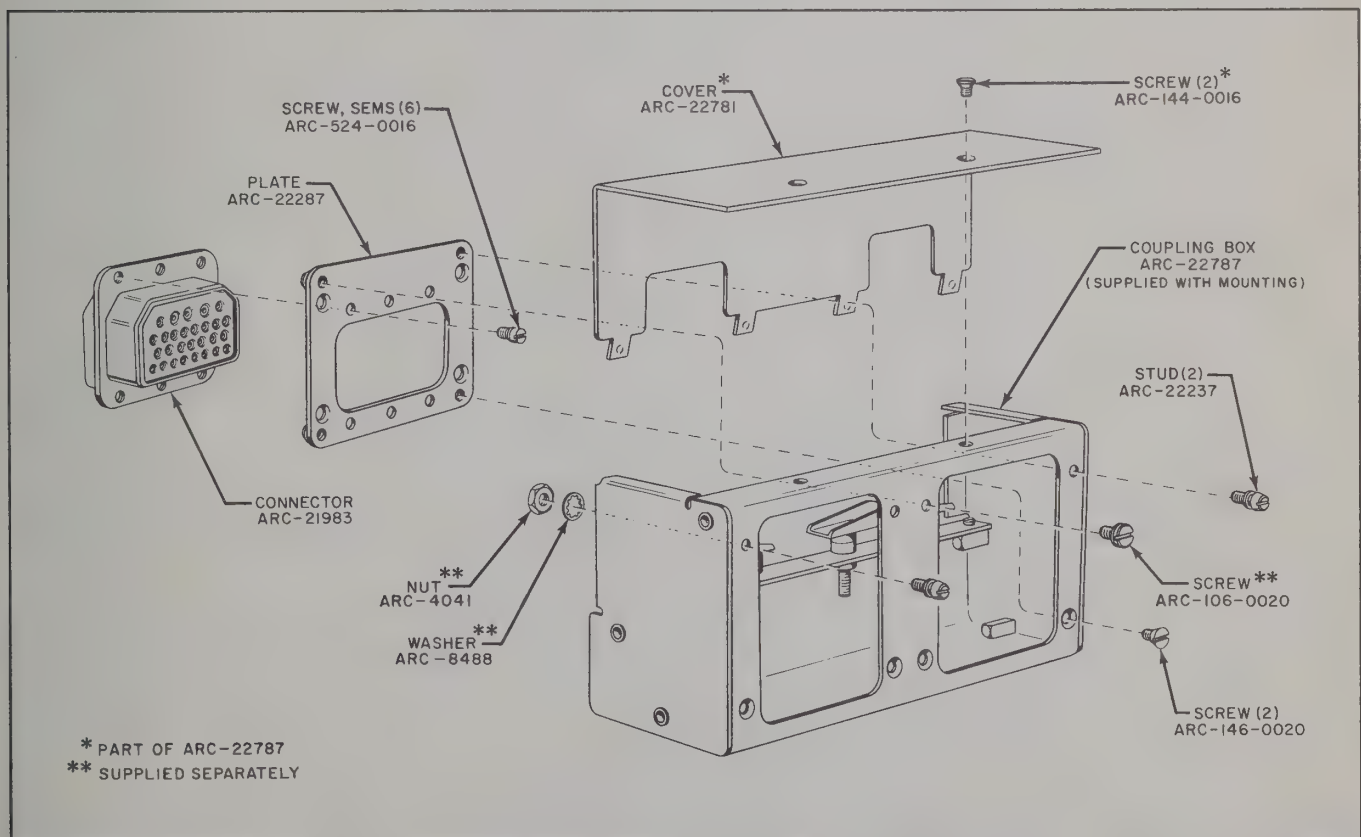
2-7. INSTALLATION OF A-25A ANTENNA.

Installation dimensions for the A-25A Antenna are shown in Figure 2-7. The exact location and method of installation will depend on the type of aircraft on which the antenna is to be installed.



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Figure 2-1. T-27A Transmitter With M-42A(2) Mounting, Installation Dimensions



TP3307

Figure 2-2. Connector Kit ARC-22366, Assembly Details

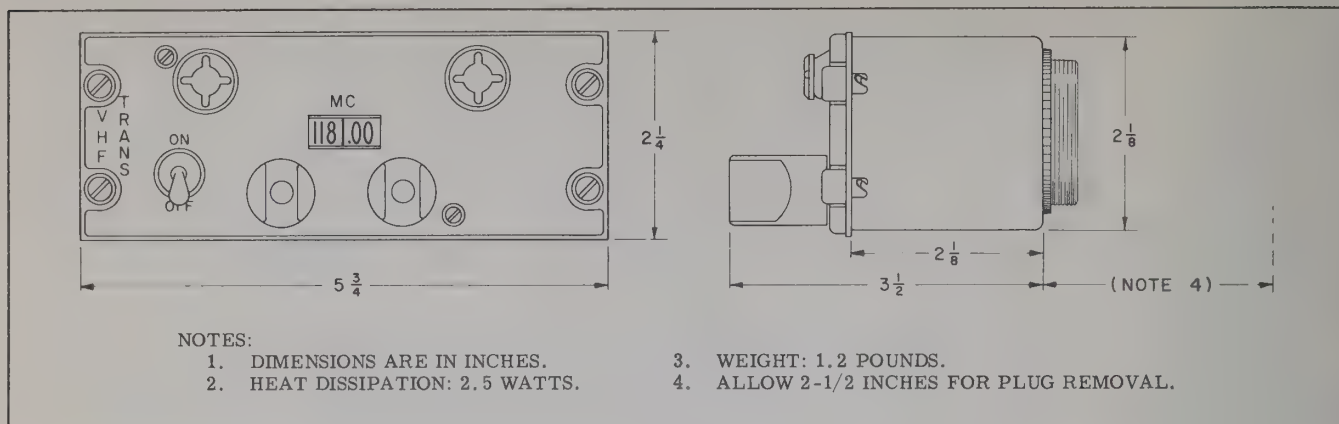


Figure 2-3. C-82A Control Unit, Outline Dimensions

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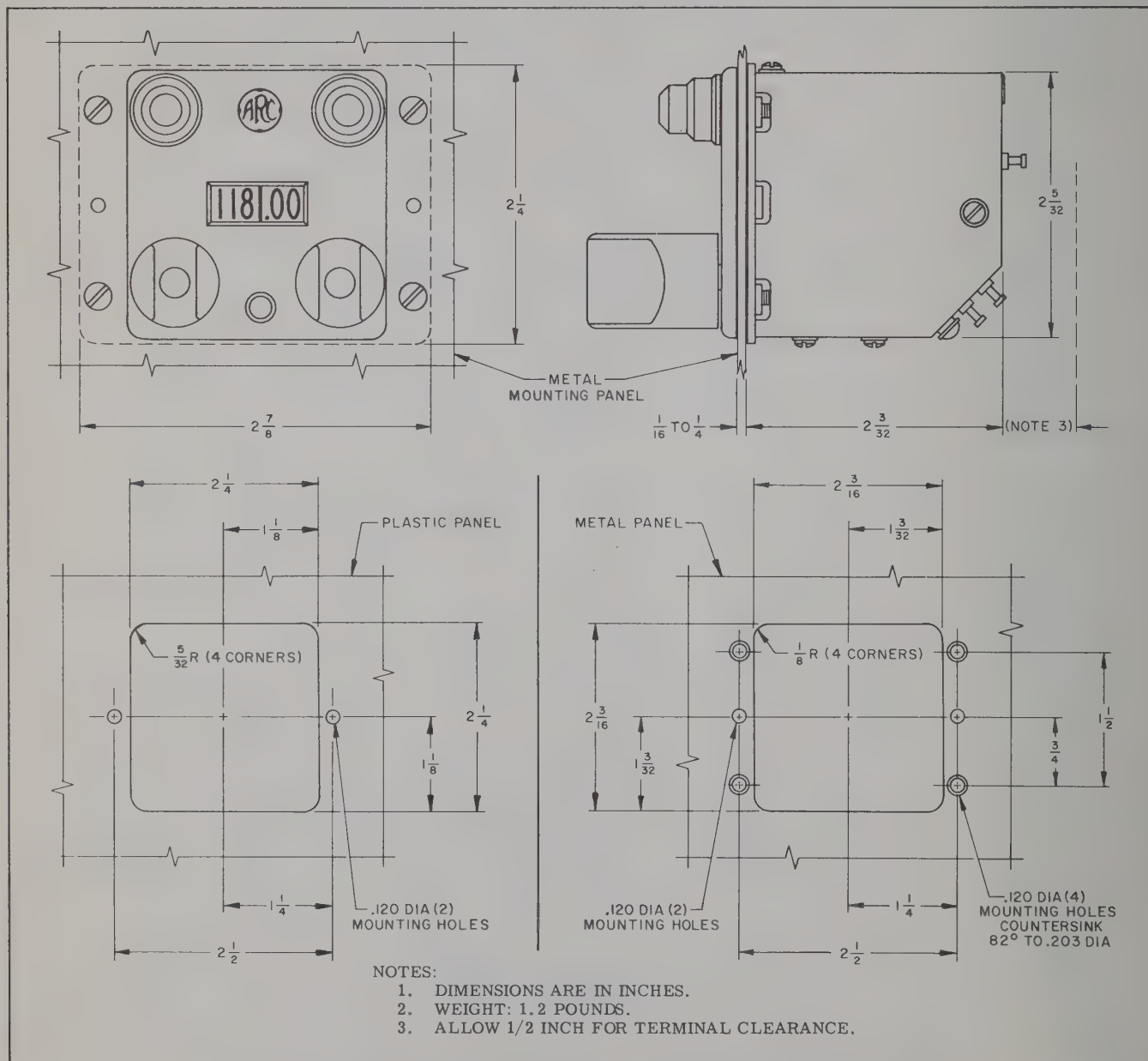


Figure 2-4. CC-10A Custom Control Unit, Installation Dimensions

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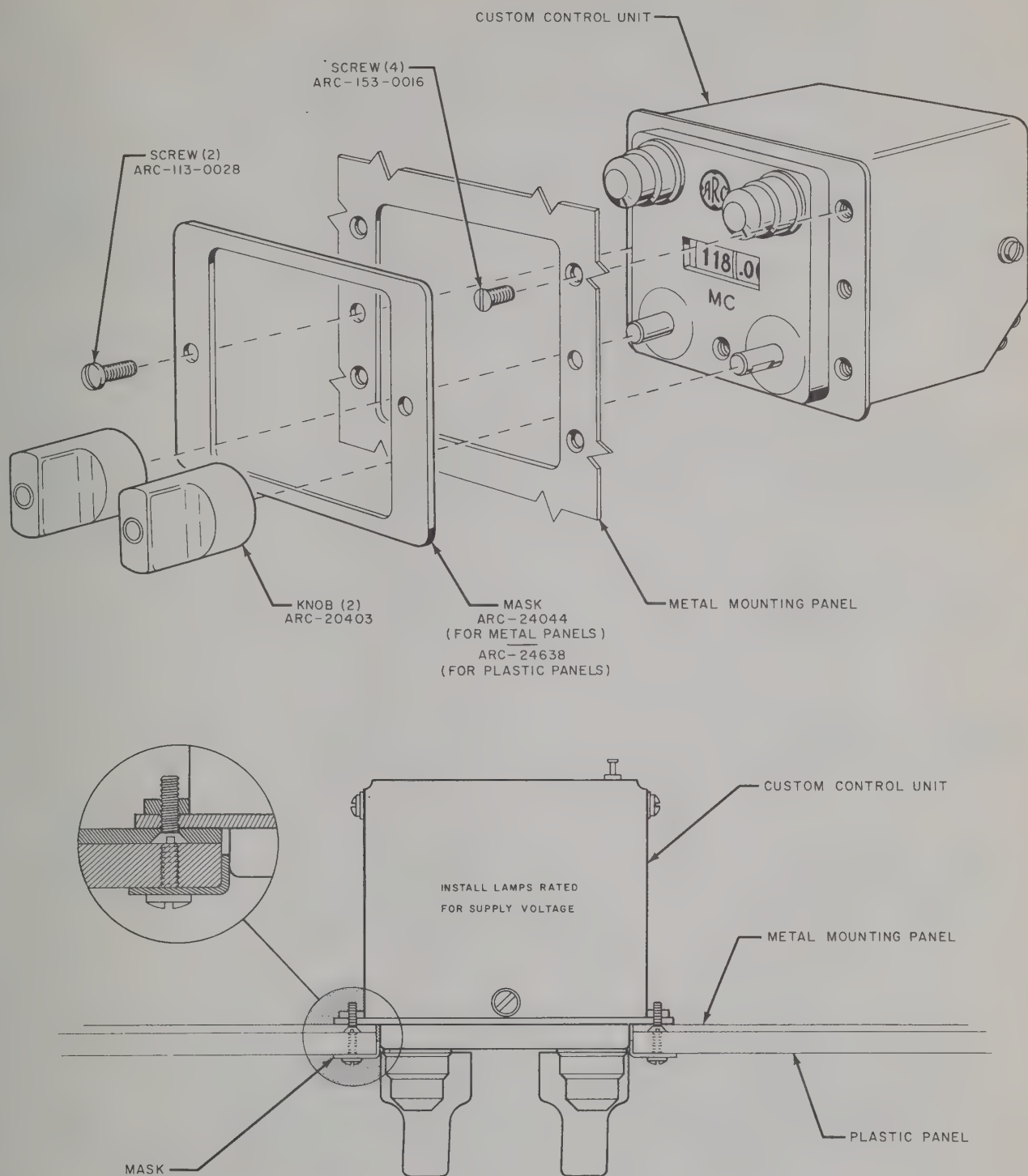
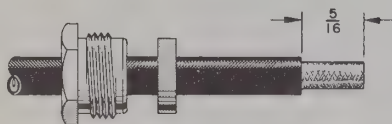
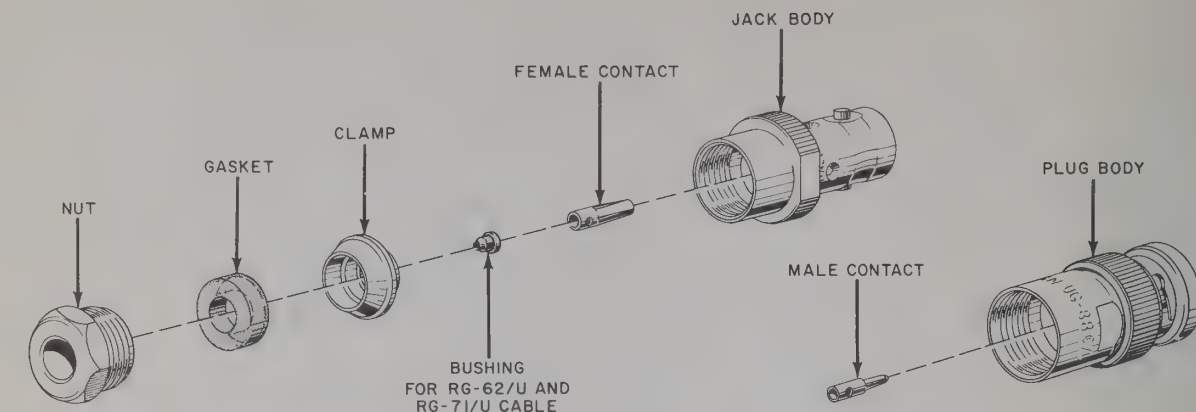
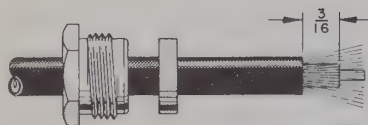


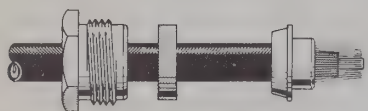
Figure 2-5. CC-10A Custom Control Unit, Assembly Details



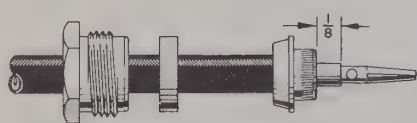
PLACE NUT AND GASKET OVER CABLE AND TRIM JACKET TO DIMENSION SHOWN. UNGROOVED FACE OF GASKET MUST BE TOWARD NUT.



COMB OUT BRAID AND CUT CABLE DIELECTRIC TO DIMENSION SHOWN, BEING CAREFUL NOT TO NICK CENTER CONDUCTOR. TIN CENTER CONDUCTOR.

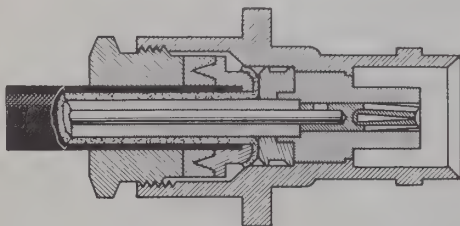


PULL BRAID WIRES FORWARD AND TAPER TOWARD CENTER CONDUCTOR. PLACE CLAMP OVER BRAID AND PUSH AGAINST CABLE JACKET.

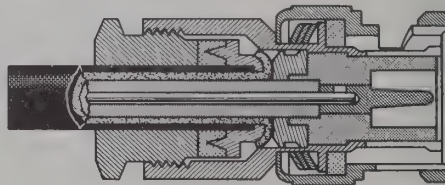


FOLD BACK BRAID WIRES AS SHOWN, TRIM TO PROPER LENGTH, AND FORM OVER CLAMP AS SHOWN. FOR RG-62/U AND RG-71/U CABLE, SLIP BUSHING OVER CENTER CONDUCTOR AND UNDER DIELECTRIC. SOLDER CONTACT TO CENTER CONDUCTOR.

CONNECTOR
UG-89B/U



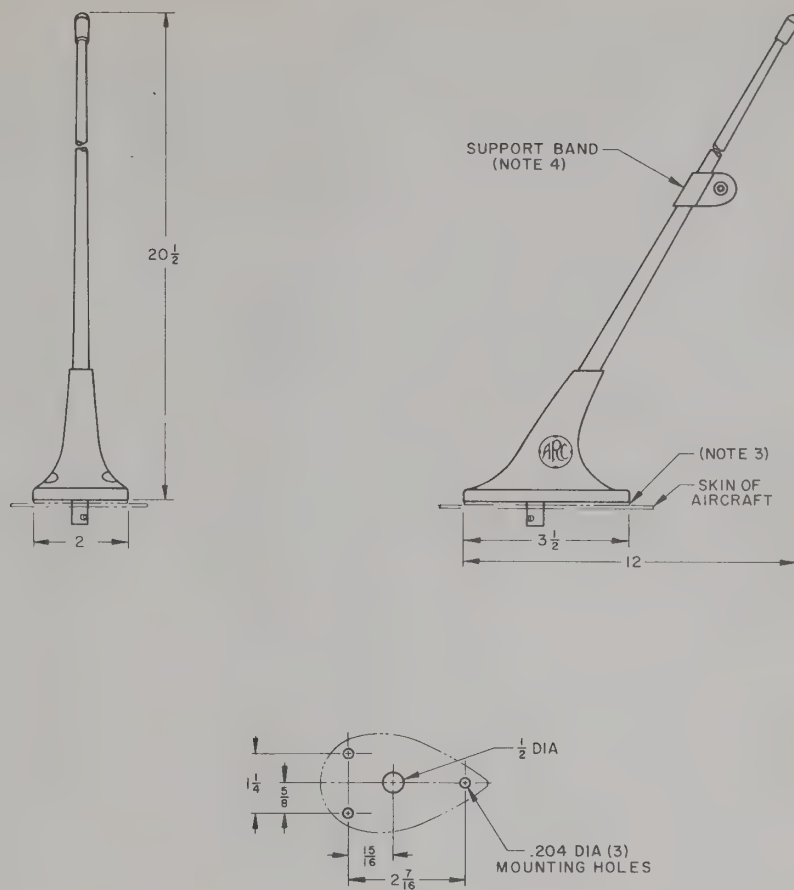
CONNECTOR
UG-88C/U



INSERT CABLE AND PARTS INTO CONNECTOR BODY. MAKE SURE SHARP EDGE OF CLAMP SEATS PROPERLY IN GASKET. TIGHTEN NUT.

Figure 2-6. Fabrication of Antenna Cable Assembly

TP1731

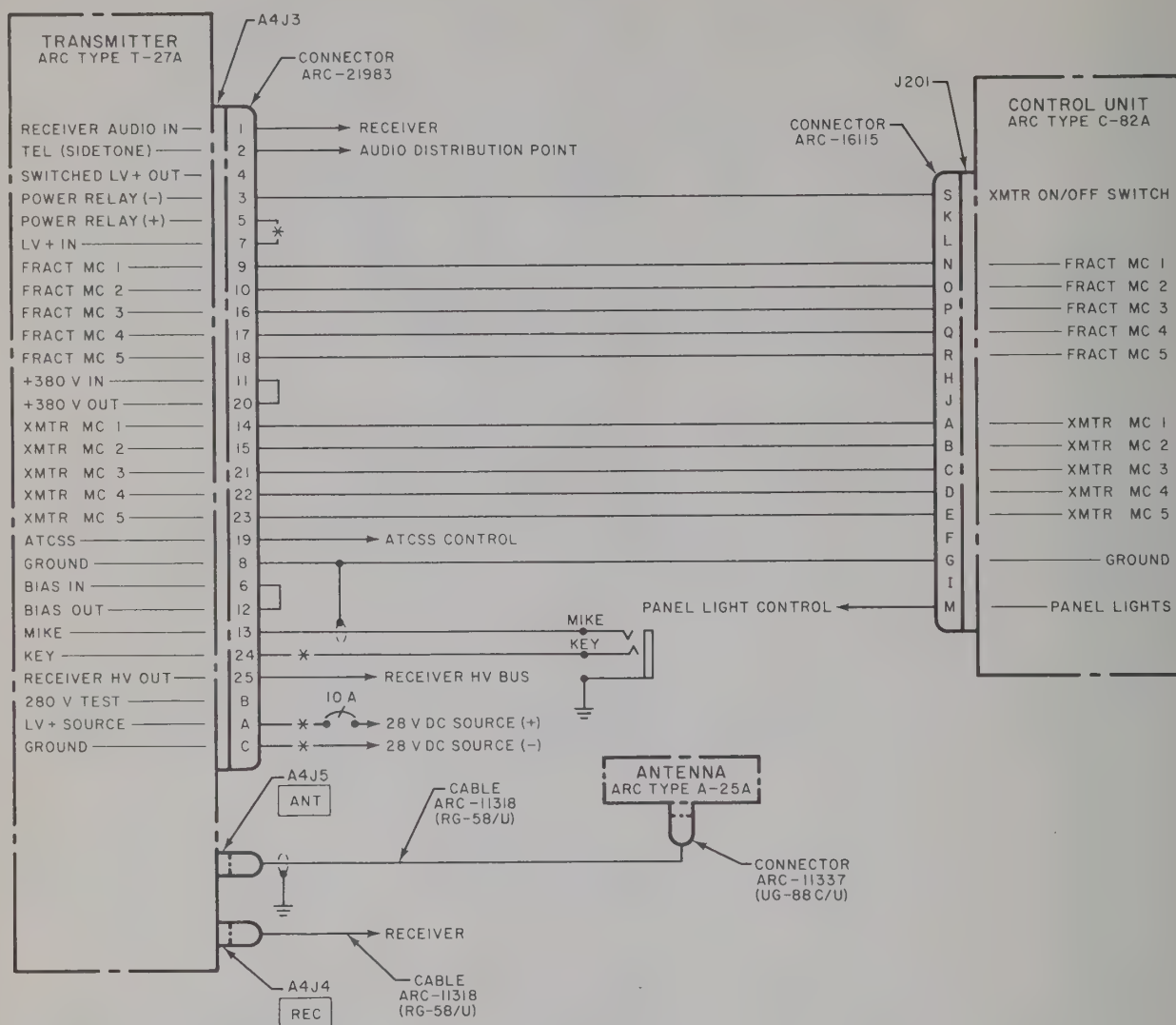


NOTES:

1. DIMENSIONS ARE IN INCHES.
2. WEIGHT: 0.5 POUND.
3. IF A-25A IS INSTALLED ON AN AIRCRAFT WITH A PRESSURIZED CABIN, OR FOR A WEATHER SEAL, INSTALL GASKET MATERIAL OF APPROPRIATE SIZE BETWEEN ANTENNA AND AIRCRAFT SKIN. IF GASKET IS USED, INSTALL A STAR WASHER UNDER HEAD OF EACH MOUNTING SCREW TO ASSURE PROPER BONDING OF ANTENNA BASE TO AIRCRAFT SKIN.
4. IF SUPPORT BAND IS USED FOR ADF SENSE ANTENNA, INSTALL AN EGG INSULATOR BETWEEN SENSE ANTENNA TERMINATION AND SUPPORT BAND. LOCATE INSULATOR AS CLOSE TO A-25A AS POSSIBLE.

Figure 2-7. A-25A Antenna, Installation Dimensions

TP3241

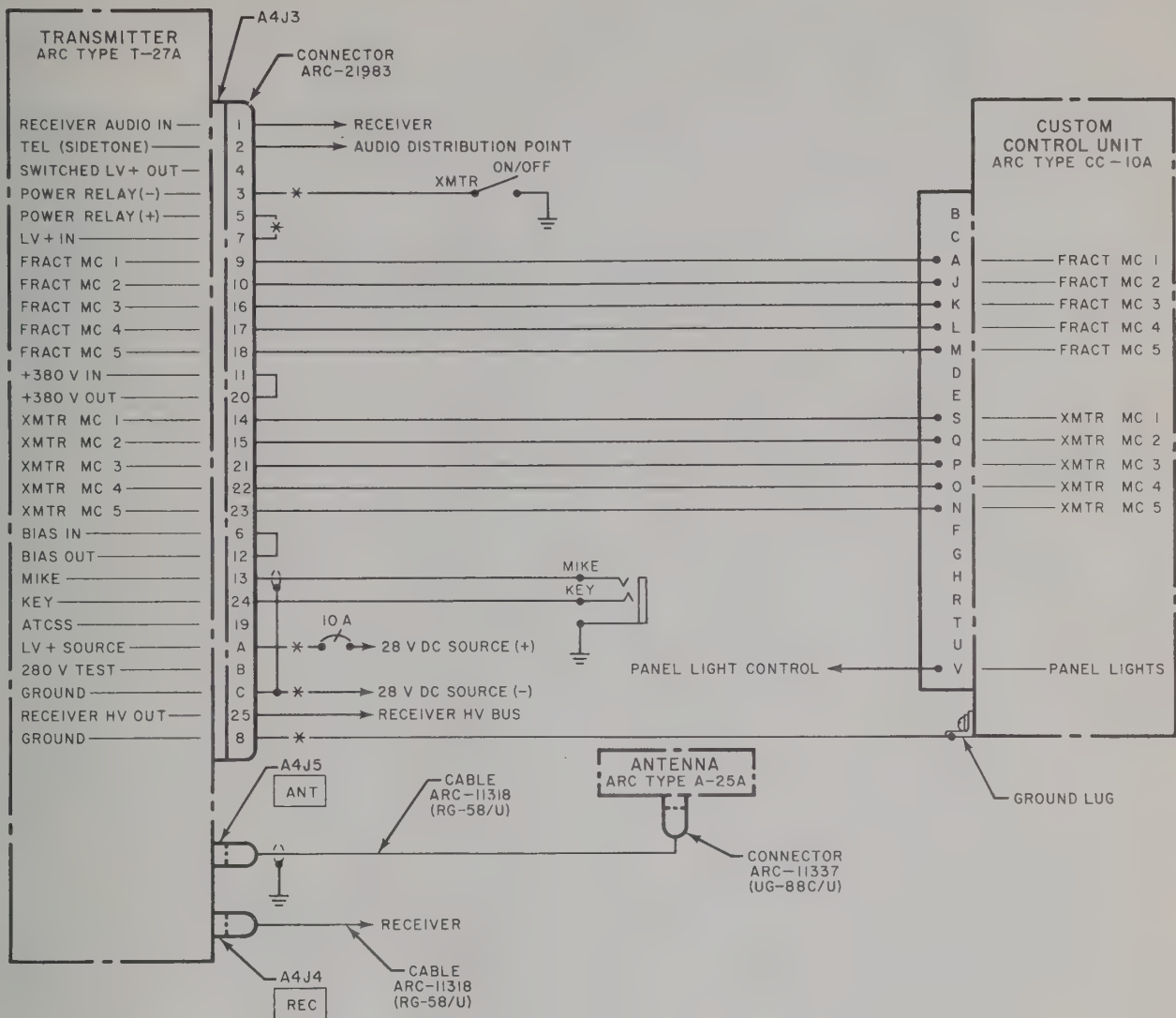


NOTES:

1. FOR PROPER GROUNDING OF THE SYSTEM, AIRCRAFT SURFACE MUST BE CLEAN, BARE METAL AT SIXTEEN MOUNTING HOLE POINTS.
2. UNMARKED WIRES ARE NO. 20 AWG STRANDED COPPER, FIBROUS-GLASS INSULATED. WIRES MARKED WITH AN ASTERISK (*) ARE NO. 16 AWG STRANDED COPPER. SHIELDED WIRE IS NO. 20 AWG SINGLE CONDUCTOR, INSULATED, SHIELDED, PROTECTED, STRANDED COPPER.

Figure 2-8. T-27A Transmitter and C-82A Control Unit, Interconnection Diagram

TP3309

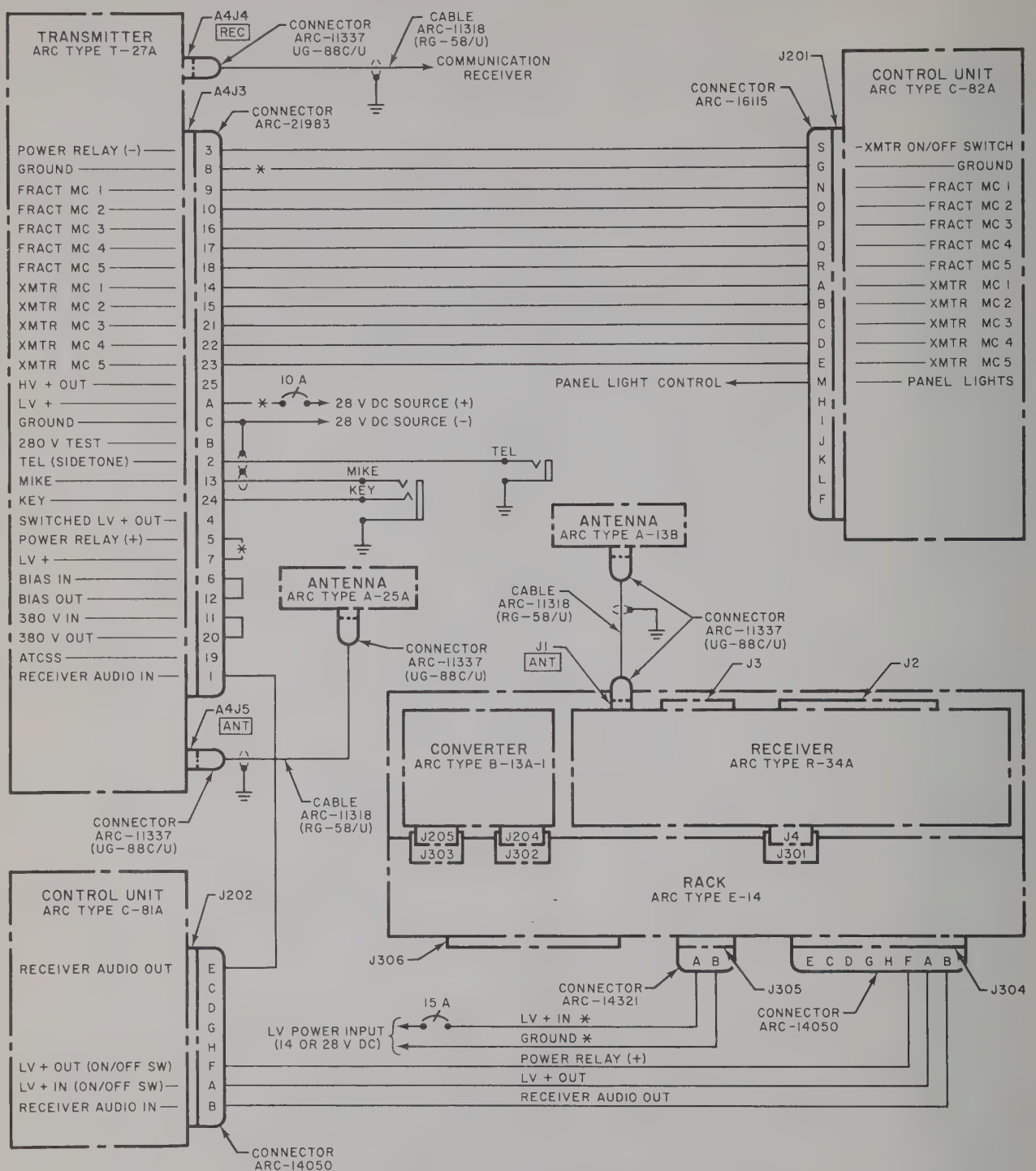


NOTES:

1. FOR PROPER GROUNDING OF THE SYSTEM, AIRCRAFT SURFACE MUST BE CLEAN, BARE METAL AT SIXTEEN MOUNTING HOLE POINTS.
2. UNMARKED WIRES ARE NO. 20 AWG STRANDED COPPER, FIBROUS-GLASS INSULATED. WIRES MARKED WITH AN ASTERISK (*) ARE NO. 16 AWG STRANDED COPPER. SHIELDED WIRE IS NO. 20 AWG SINGLE CONDUCTOR, INSULATED, SHIELDED, PROTECTED, STRANDED COPPER.

Figure 2-9. T-27A Transmitter and CC-10A Custom Control Unit, Interconnection Diagram

TP3311



NOTES:

1. FOR PROPER GROUNDING OF THE SYSTEM, AIRCRAFT SURFACE MUST BE CLEAN, BARE METAL AT ALL MOUNTING HOLE POINTS.
2. UNMARKED WIRES ARE NO. 20 AWG STRANDED COPPER, FIBROUS-GLASS INSULATED. WIRES MARKED WITH AN ASTERISK (*) ARE NO. 16 AWG STRANDED COPPER. SHIELDED WIRES ARE NO. 20 AWG SINGLE CONDUCTOR, INSULATED, SHIELDED, PROTECTED, STRANDED COPPER.
3. SEE TYPE 15F INSTRUCTION BOOK FOR COMPLETE INSTALLATION DIAGRAMS FOR TYPE 15F EQUIPMENT.

Figure 2-10. Type 15F and T-27A Transmitter, Interconnection Diagram

TP3313

SECTION III

OPERATION

3-1. OPERATING LIMITATIONS AND PRECAUTIONS.

The ARC Type T-27A VHF Transmitter operates over a frequency range of 118.00 - 135.95 mc in 50-kc steps, providing a total of 360 channels. The power output is 30 watts (nominal), and the transmitter meets FAA TSO C-37a, Category A (altitude to 50,000 feet). The unit will operate satisfactorily over a temperature range of -55°C to 71°C.

3-2. OPERATING CONTROLS.

The T-27A Transmitter does not include any operating controls. Operating controls are located externally and may be part of a control unit, such as the ARC Type C-82A Control Unit or, in custom control installations, an ARC Type CC-10A Custom Control Unit.

The C-82A Control Unit, shown in Figure 3-1, is an edge-lighted, plastic-panel control assembly designed for use in aircraft equipped with console mounting facilities. It contains a primary power on-off switch, a megacycle channel selector switch, and a fractional megacycle channel selector switch. The ARC Type CC-10A Custom Control Unit contains the same type of channel selector switch assemblies used in the C-82A, but it does not contain a power on-off switch. The functions of all controls are described in Table 3-1.

3-3. OPERATION.

The following procedure refers to the C-82A controls shown in Figure 3-1. If a custom control installation is used in place of the C-82A, similarly designated controls are used.

Step 1. Apply primary power to the T-27A by setting the power switch to ON. Allow approximately 30 seconds for the T-27A to warm up.

Step 2. Select the channel frequency by rotating the megacycle channel selector switch to the desired megacycle setting; then rotate the fractional megacycle channel selector switch to the desired fractional megacycle setting.

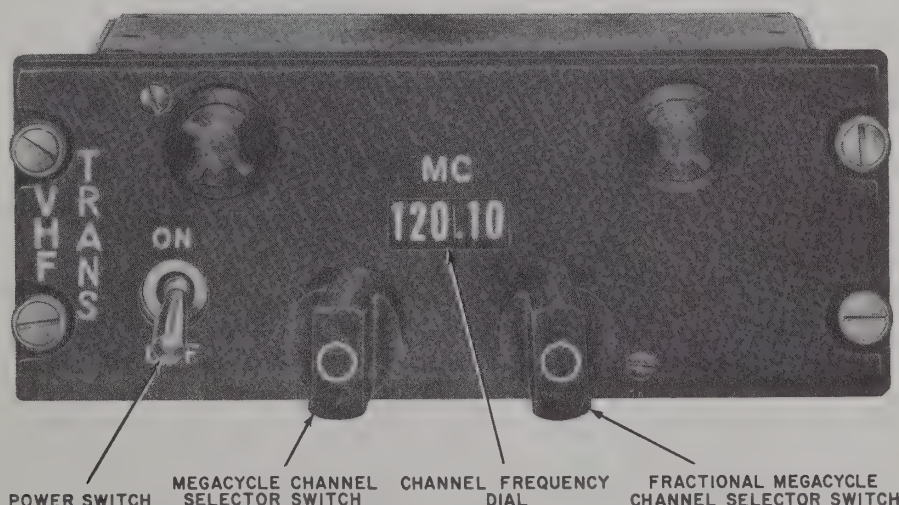


Figure 3-1. C-82A Control Unit, Operating Controls

TP1348

Step 3. Tune the associated receiver to the desired receiving frequency.

Step 4. To transmit, close the microphone switch, and speak directly into the microphone. The transmission will be monitored in the sidetone circuit.

Step 5. To receive, open the microphone switch.

TABLE 3-1. OPERATING CONTROLS

Control	Function
Power Switch (ON-OFF)	Applies primary power to the T-27A.
Megacycle Channel Selector Switch (118 - 135 MC)	Selects the megacycle channel frequency, as indicated on the megacycle portion of the channel frequency dial (MC). Clockwise rotation of the selector knob increases frequency in 1.0-mc steps from 118 - 135 mc. Beyond 135 mc, the selector knob returns to 118 mc. The selector knob may be rotated in either direction to reach the desired megacycle frequency.
Fractional Megacycle Channel Selector Switch (.00-.95 MC)	Selects the fractional megacycle channel frequency as indicated on the fractional megacycle portion of the channel frequency dial (MC). Clockwise rotation of the selector knob increases frequency in 0.05-mc steps from .00 - .95 mc. Beyond .95 mc, the selector returns to .00 mc. The selector knob may be rotated in either direction to reach the desired fractional megacycle frequency.

3-4. NORMAL PERFORMANCE INDICATIONS.

The operator should test the T-27A prior to take-off by checking for undistorted sidetone. Although this is not a complete test of the T-27A circuits, the presence of sidetone indicates that the modulator is operating properly.

SECTION IV

MAINTENANCE

4-1. INTRODUCTION.

This section contains maintenance information for the T-27A Transmitter. Included are a list of test equipment, a performance test, and schematic and wiring diagrams.

Warning

Voltages used in this equipment are dangerous and may be fatal if contacted. Observe all safety precautions.

4-2. TEST EQUIPMENT.

Table 4-1 lists the test equipment required for maintenance of the T-27A; equivalent test equipment may be substituted.

TABLE 4-1. TEST EQUIPMENT

Qty	Name	Designation	Characteristics
1	Ammeter	Weston Model 301	0 - 10 amperes dc
1	Audio Oscillator	Hewlett-Packard Model 200AB	-
1	Control Unit ¹	ARC Type C-82A	-
1	Primary Power Supply	-	0 - 28-volt dc rectifier
1	R-f Wattmeter	Bird Electronic Model 61	51.5 ohms, 50 watts
1	Vacuum Tube Voltmeter	Ballantine Model 300	-
1	Voltmeter	Weston Model 301	0 - 50 volts dc
1	Voltmeter	Weston Model 301	0 - 500 volts dc

¹In place of the C-82A, an ARC Type CC-10A Custom Control Unit (ARC-24020), and a power on-off switch, may be used.

4-3. PERFORMANCE TEST.

Table 4-2 outlines the procedures for testing the T-27A. The test equipment required for the performance test is listed in Table 4-1; the bench test setup required to test the unit is shown in Figure 4-1.

TABLE 4-2. PERFORMANCE TEST

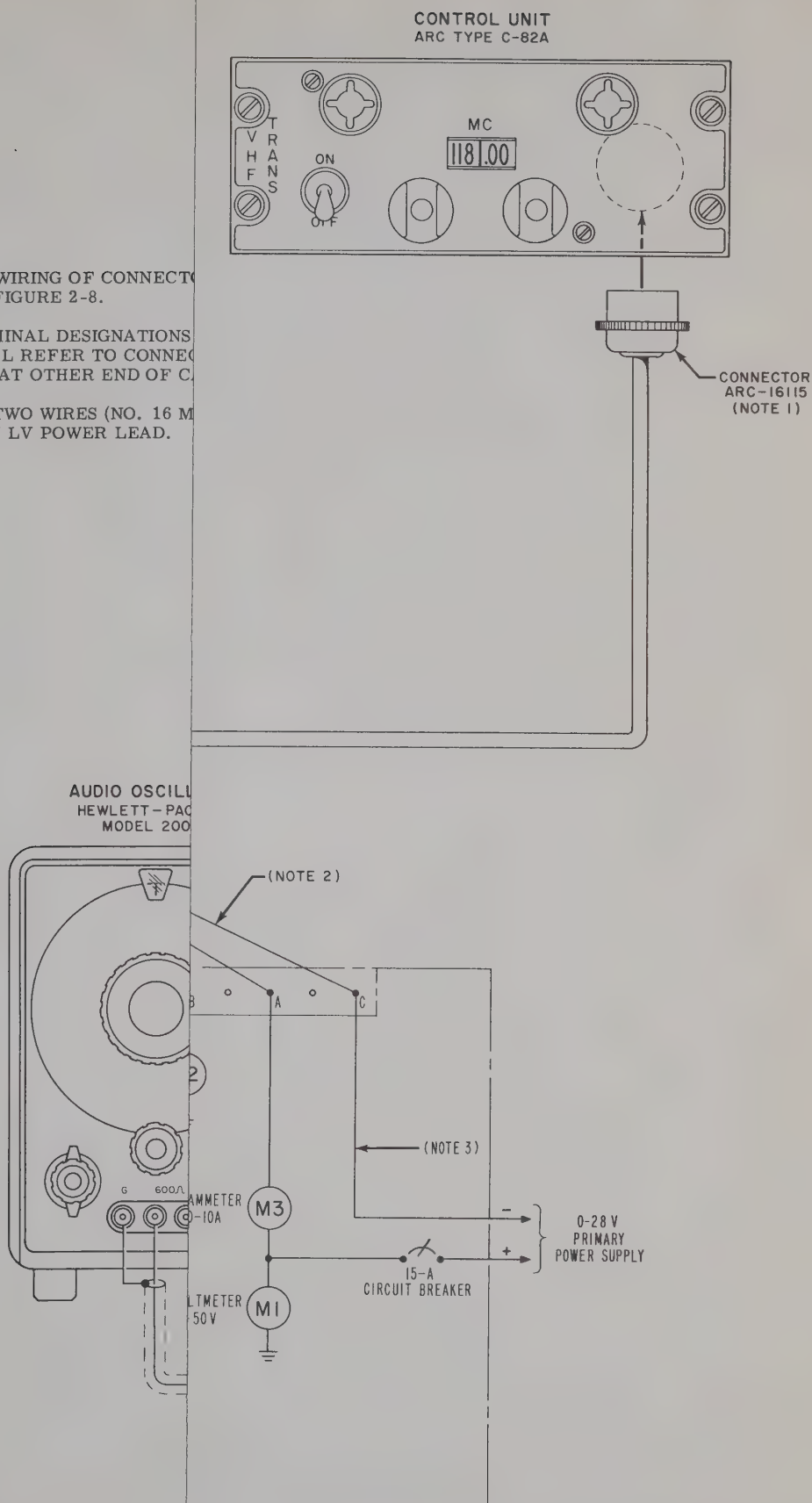
Step	Procedure	Normal Indication
PRELIMINARY PROCEDURE		
1	Interconnect equipment as shown in Figure 4-1.	None.
2	Apply power to test equipment. Set C-82A power switch to ON, and adjust primary power supply for a 27.5-volt indication on meter M1. Allow a five-minute warm-up.	Meter M1 indicates 27.5 volts; meter M2 indicates 280 volts $\pm 10\%$; and meter M3 indicates between 0.8 and 1.5 amperes.

TABLE 4-2. PERFORMANCE TEST (Cont.)

Step	Procedure	Normal Indication
CHANNELING PERFORMANCE		
1	Perform preliminary procedure outlined in this table.	See preliminary procedure.
2	Remove cover from T-27A. Operate C-82A megacycle channel selector switch to select each megacycle channel; operate fractional megacycle channel selector switch to select each fractional megacycle channel. Observe T-27A crystal drums for correct positioning.	Appropriate crystal drum indexes to selected frequency.
3	Adjust primary power supply for a 20-volt indication on meter M1, and repeat Step 2.	See Step 2.
4	Readjust primary power supply for a 27.5-volt indication on meter M1.	Meter M1 indicates 27.5 volts.
RELAY OPERATION		
1	Perform preliminary procedure outlined in this table.	See preliminary procedure.
2	Set HV switch to OFF. Adjust primary power supply for a 20-volt indication on meter M1.	Meter M1 indicates 20 volts.
3	Remove cover from front panel of T-27A. Set KEY switch to ON. Inspect relays A4K1, A4K2, and A4K3, and vacuum tube filaments.	Relays are energized and vacuum tube filaments glow.
4	Set KEY switch to OFF and HV switch to ON. Readjust primary power supply for a 27.5-volt indication on meter M1.	Meter M1 indicates 27.5 volts.
TRANSMITTER POWER OUTPUT		
1	Perform preliminary procedure outlined in this table.	See preliminary procedure.
2	Set C-82A channel selector switches to 135.50. Set KEY switch to ON, and read unmodulated power output on r-f wattmeter.	R-f wattmeter indicates 30 \pm 5 watts.
3	Repeat Step 2 for all settings of the megacycle and fractional megacycle channel selector switches.	R-f wattmeter indicates 30 \pm 5 watts.
MODULATOR PERFORMANCE		
1	Perform preliminary procedure outlined in this table.	See preliminary procedure.
2	Set MOD switch to ON. Set MIC-SIDETONE switch to MIC. Set C-82A channel selector switches to 126.50 and adjust audio oscillator for a 1000-cps output.	None.
3	Set KEY switch to ON. Adjust audio oscillator for a 0.5-volt indication on a-c voltmeter. Set KEY switch to OFF.	A-c voltmeter indicates 0.5 volt.
4	Set SIDE TONE control on T-27A full clockwise. Set MIC-SIDETONE switch to SIDETONE. Set KEY switch to ON. Read sidetone voltage on a-c voltmeter, then set KEY switch to OFF.	A-c voltmeter indicates at least 6.5 volts.

NOTES:

1. FOR WIRING OF CONNECTOR SEE FIGURE 2-8.
2. TERMINAL DESIGNATIONS ON PANEL REFER TO CONNECTOR PINS AT OTHER END OF CABLE.
3. USE TWO WIRES (NO. 16 MIN.) EACH LV POWER LEAD.



TP3315

Figure 4-1. Bench Test Interconnection Diagram

TABLE 4-2. PERFORMANCE TEST (Cont.)

Step	Procedure	Normal Indication
CHANNELING PERFORMANCE		
1	Perform preliminary procedure outlined in this table.	See preliminary procedure.
2	Remove cover from T-27A. Operate C-82A megacycle channel selector switch to select each megacycle channel; operate fractional megacycle channel selector switch to select each fractional megacycle channel. Observe T-27A crystal drums for correct positioning.	Appropriate crystal drum indexes to selected frequency.
3	Adjust primary power supply for a 20-volt indication on meter M1, and repeat Step 2.	See Step 2.
4	Readjust primary power supply for a 27.5-volt indication on meter M1.	Meter M1 indicates 27.5 volts.
RELAY OPERATION		
1	Perform preliminary procedure outlined in this table.	See preliminary procedure.
2	Set HV switch to OFF. Adjust primary power supply for a 20-volt indication on meter M1.	Meter M1 indicates 20 volts.
3	Remove cover from front panel of T-27A. Set KEY switch to ON. Inspect relays A4K1, A4K2, and A4K3, and vacuum tube filaments.	Relays are energized and vacuum tube filaments glow.
4	Set KEY switch to OFF and HV switch to ON. Readjust primary power supply for a 27.5-volt indication on meter M1.	Meter M1 indicates 27.5 volts.
TRANSMITTER POWER OUTPUT		
1	Perform preliminary procedure outlined in this table.	See preliminary procedure.
2	Set C-82A channel selector switches to 135.50. Set KEY switch to ON, and read unmodulated power output on r-f wattmeter.	R-f wattmeter indicates 30 \pm 5 watts.
3	Repeat Step 2 for all settings of the megacycle and fractional megacycle channel selector switches.	R-f wattmeter indicates 30 \pm 5 watts.
MODULATOR PERFORMANCE		
1	Perform preliminary procedure outlined in this table.	See preliminary procedure.
2	Set MOD switch to ON. Set MIC-SIDETONE switch to MIC. Set C-82A channel selector switches to 126.50 and adjust audio oscillator for a 1000-cps output.	None.
3	Set KEY switch to ON. Adjust audio oscillator for a 0.5-volt indication on a-c voltmeter. Set KEY switch to OFF.	A-c voltmeter indicates 0.5 volt.
4	Set SIDE TONE control on T-27A full clockwise. Set MIC-SIDETONE switch to SIDETONE. Set KEY switch to ON. Read sidetone voltage on a-c voltmeter, then set KEY switch to OFF.	A-c voltmeter indicates at least 6.5 volts.

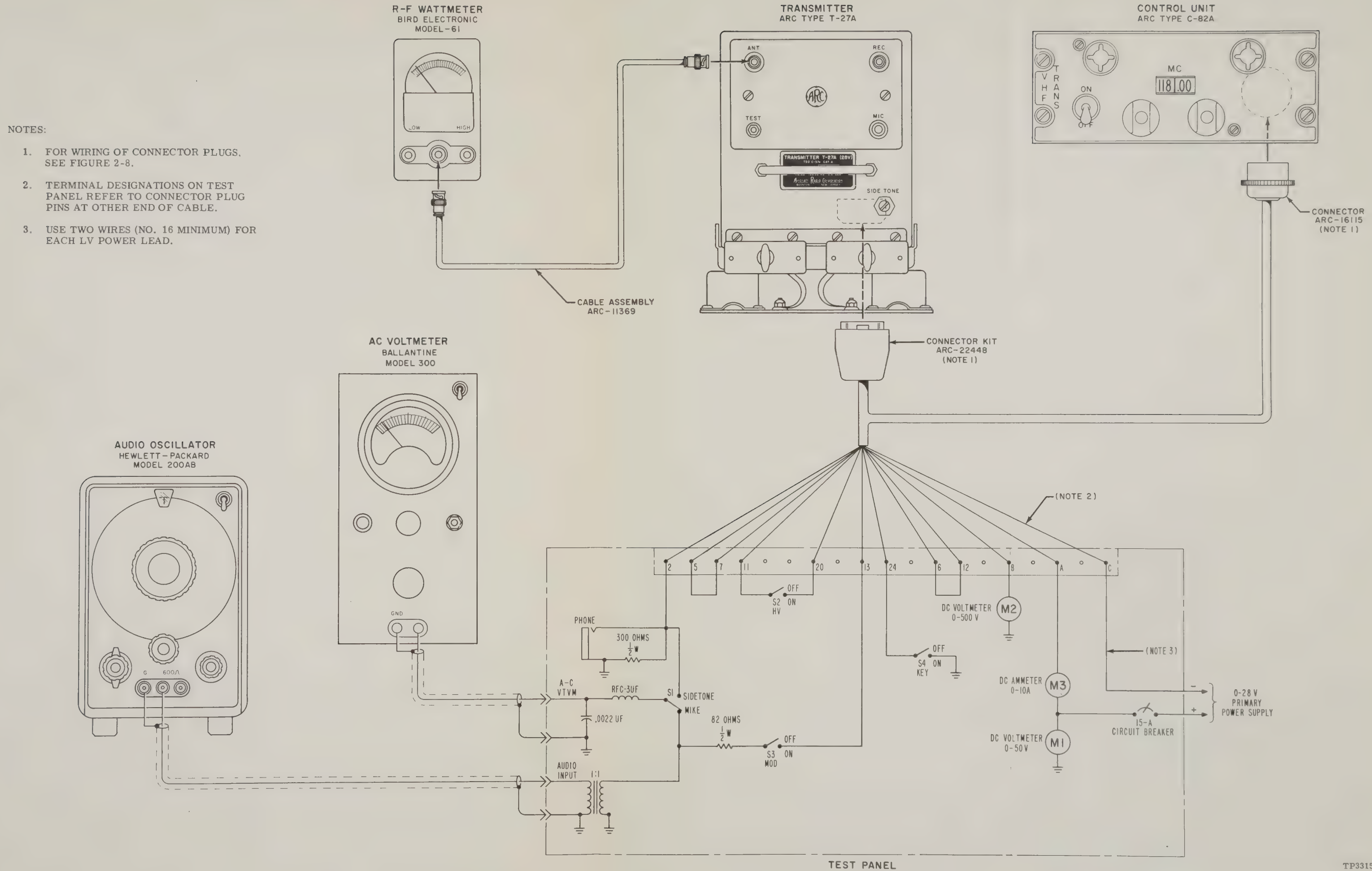
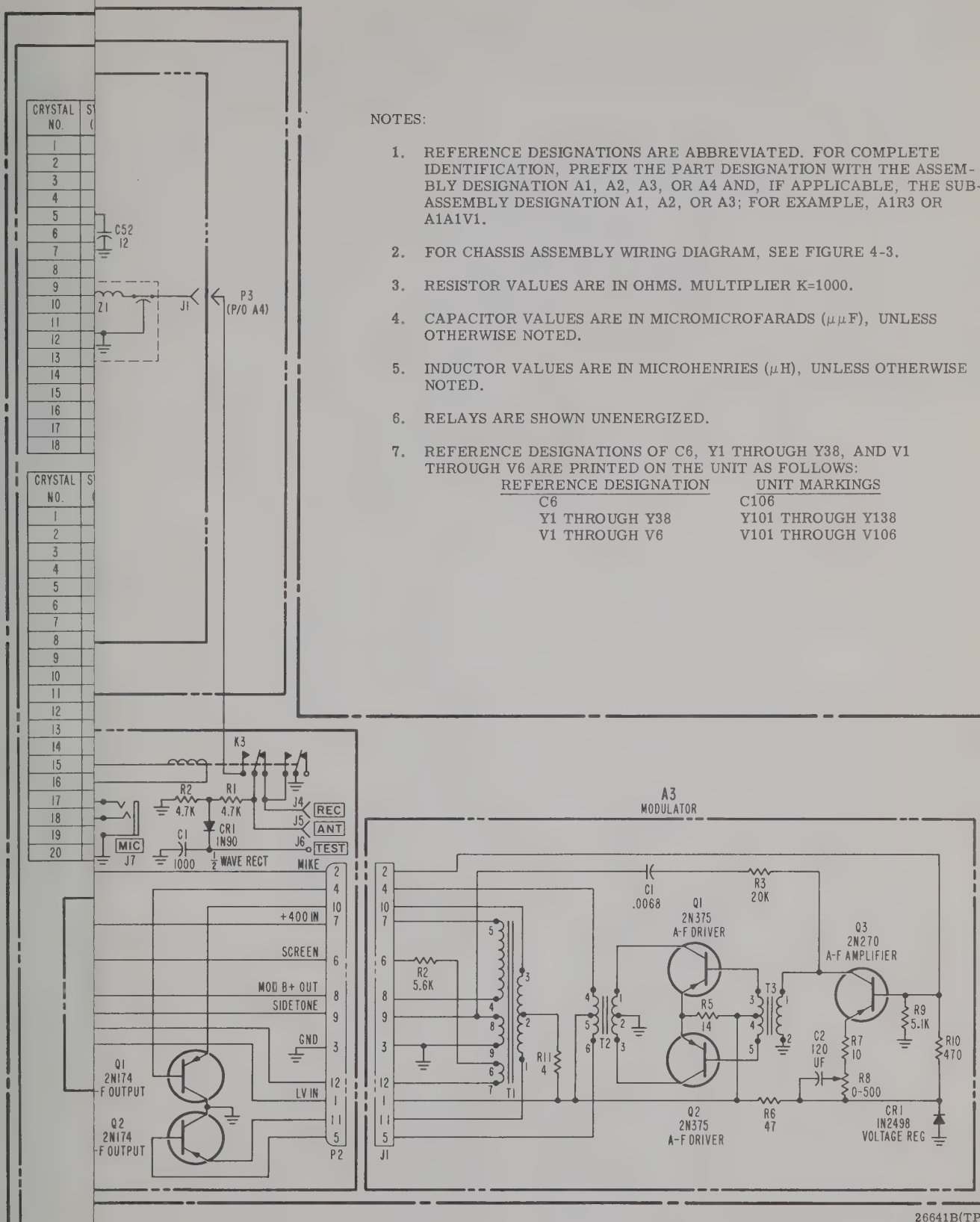


Figure 4-1. Bench Test Interconnection Diagram

NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX THE PART DESIGNATION WITH THE ASSEMBLY DESIGNATION A1, A2, A3, OR A4 AND, IF APPLICABLE, THE SUB-ASSEMBLY DESIGNATION A1, A2, OR A3; FOR EXAMPLE, A1R3 OR A1A1V1.
2. FOR CHASSIS ASSEMBLY WIRING DIAGRAM, SEE FIGURE 4-3.
3. RESISTOR VALUES ARE IN OHMS. MULTIPLIER K=1000.
4. CAPACITOR VALUES ARE IN MICROMICROFARADS ($\mu\mu\text{F}$), UNLESS OTHERWISE NOTED.
5. INDUCTOR VALUES ARE IN MICROHENRIES (μH), UNLESS OTHERWISE NOTED.
6. RELAYS ARE SHOWN UNENERGIZED.
7. REFERENCE DESIGNATIONS OF C6, Y1 THROUGH Y38, AND V1 THROUGH V6 ARE PRINTED ON THE UNIT AS FOLLOWS:

REFERENCE DESIGNATION	UNIT MARKINGS
C6	C106
Y1 THROUGH Y38	Y101 THROUGH Y138
V1 THROUGH V6	V101 THROUGH V106



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Figure 4-2. T-27A Transmitter, Schematic Diagram

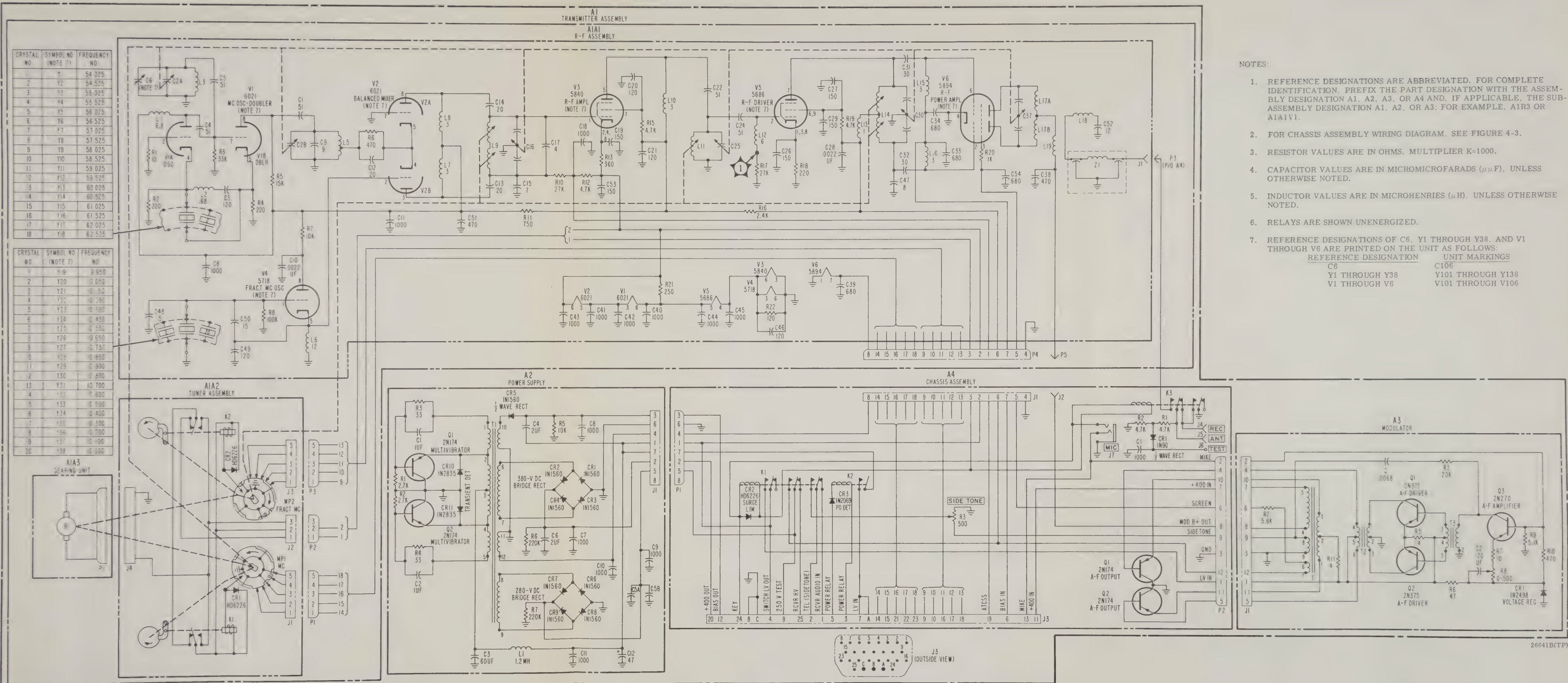
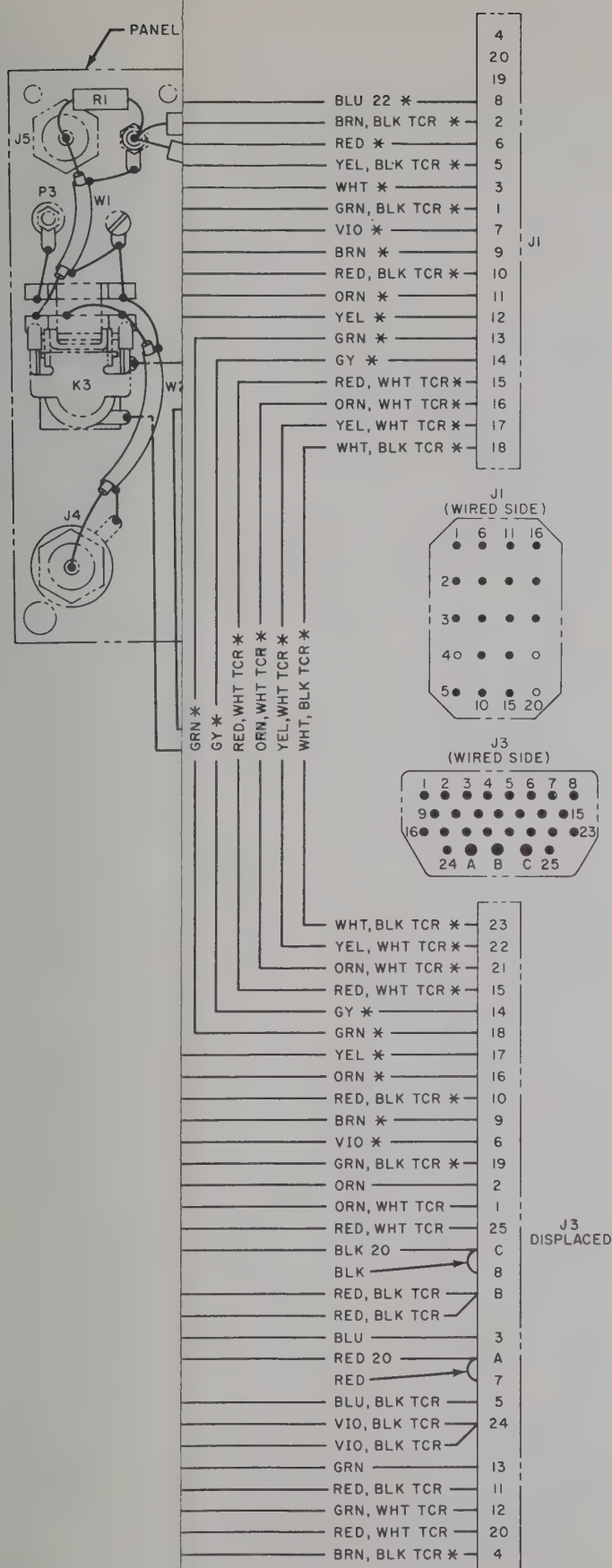


Figure 4-2. T-27A Transmitter, Schematic Diagram



NOTES:

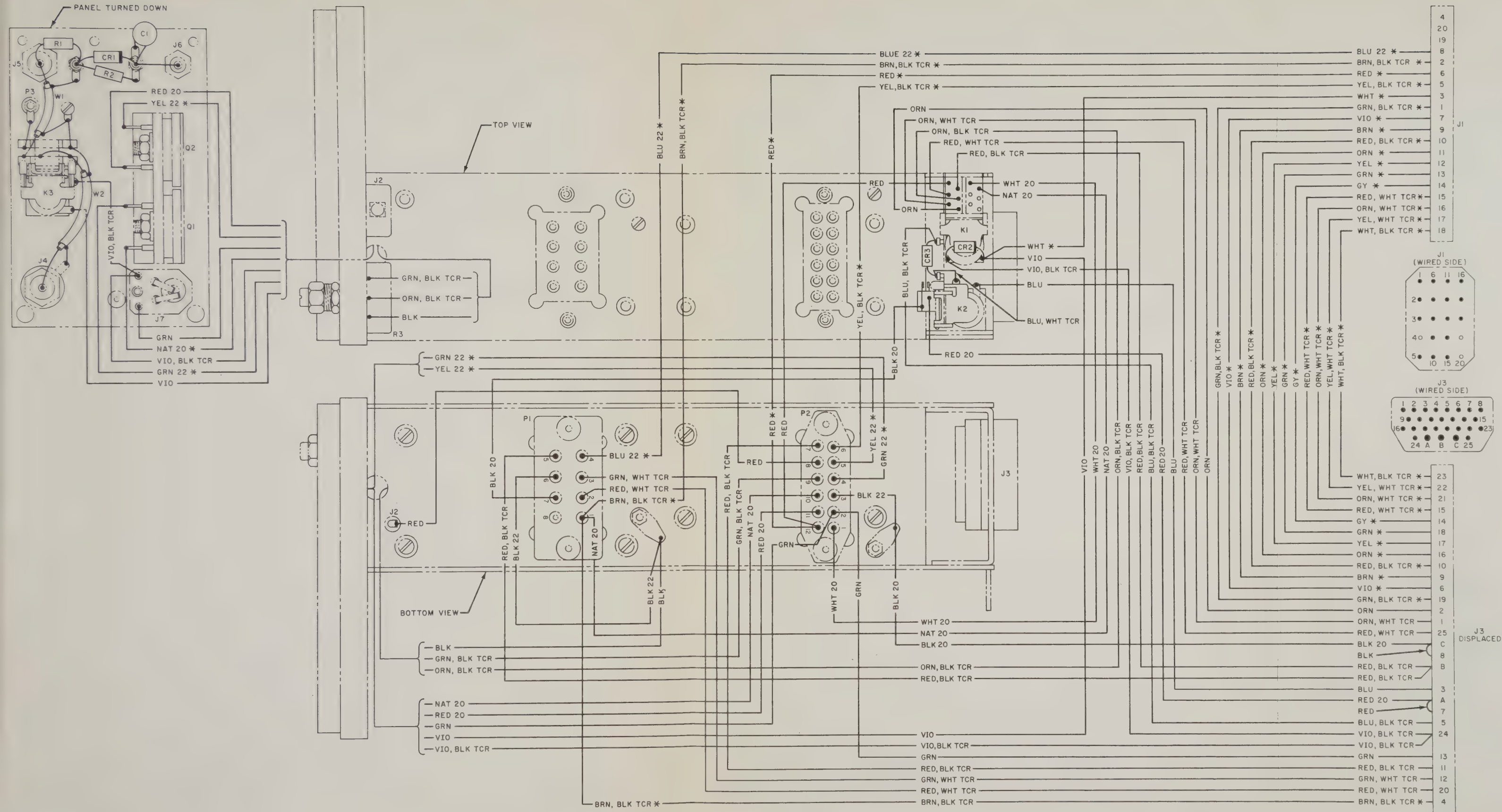
1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX THE PART DESIGNATION WITH THE ASSEMBLY DESIGNATION A4; FOR EXAMPLE, A4K1.
2. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-2.
3. ASSOCIATED WIRING DIAGRAMS ARE AS FOLLOWS:

ASSEMBLY	FIGURE NO.
TRANSMITTER A1	4-4
POWER SUPPLY A2	4-9
MODULATOR A3	4-10

4. UNMARKED WIRES ARE NO. 18 AWG BARE, SOLID COPPER CLAD STEEL. WIRES MARKED WITH A COLOR NOTE ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE NO. 24 AWG STRANDED COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND NUMBER 20 ARE NO. 20 AWG STRANDED COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND NUMBER 22 ARE NO. 22 AWG SOLID COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE, NUMBER 22, AND AN ASTERISK (*) ARE NO. 22 AWG STRANDED COPPER, TEFLON INSULATED.
5. CABLES W1 AND W2 ARE 50-OHM MINIATURE COAXIAL CABLES, ARC-18327.

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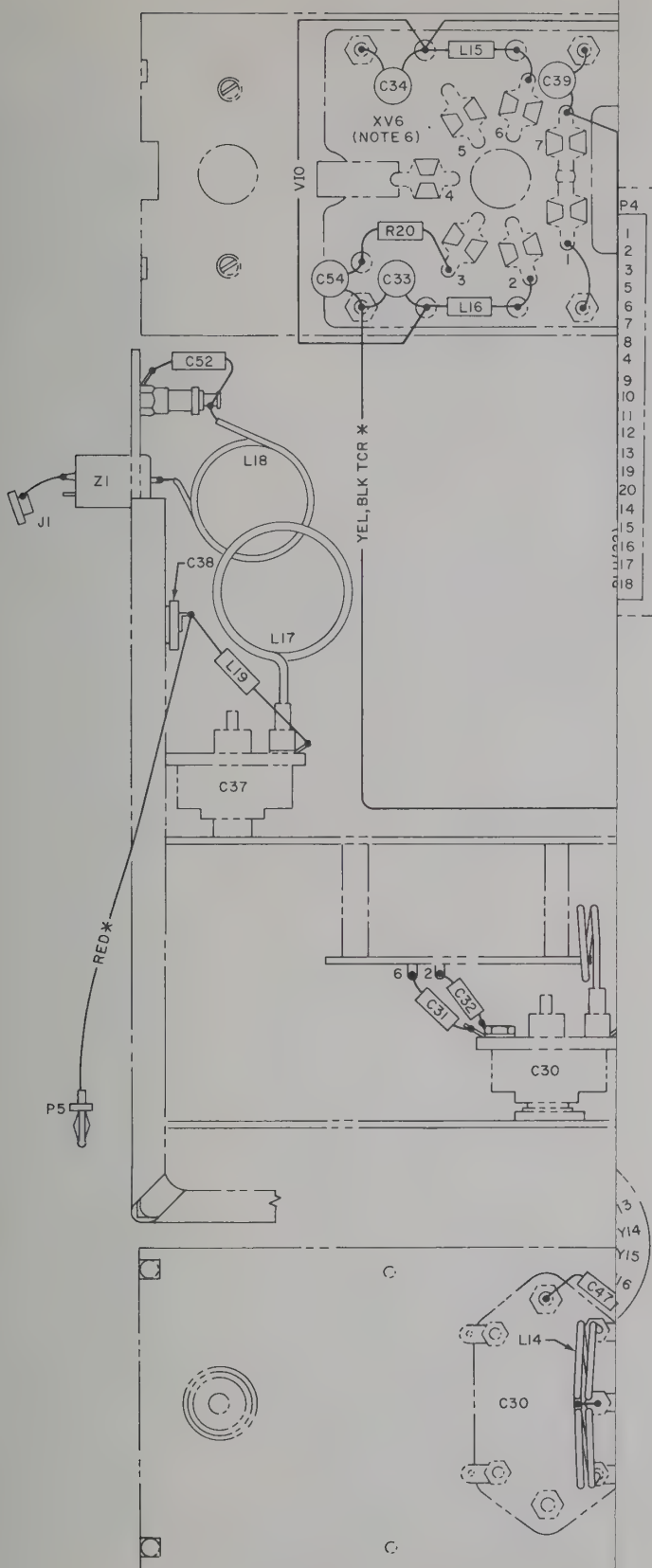
Figure 4-3. Chassis Assembly A4, Wiring Diagram



- NOTES:
1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX THE PART DESIGNATION WITH THE ASSEMBLY DESIGNATION A4; FOR EXAMPLE, A4K1.
 2. FOR SCHEMATIC DIAGRAM. SEE FIGURE 4-2.
 3. ASSOCIATED WIRING DIAGRAMS ARE AS FOLLOWS:

ASSEMBLY	FIGURE NO.
TRANSMITTER A1	4-4
POWER SUPPLY A2	4-9
MODULATOR A3	4-10
 4. UNMARKED WIRES ARE NO. 18 AWG BARE, SOLID COPPER CLAD STEEL. WIRES MARKED WITH A COLOR NOTE ARE NO. 24 AWG SOLID COPPER. TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE NO. 24 AWG STRANDED COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND NUMBER 20 ARE NO. 20 AWG STRANDED COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND NUMBER 22 ARE NO. 22 AWG SOLID COPPER. TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE, NUMBER 22, AND AN ASTERISK (*) ARE NO. 22 AWG STRANDED COPPER, TEFLON INSULATED.
 5. CABLES W1 AND W2 ARE 50-OHM MINIATURE COAXIAL CABLES, ARC-18327.

Figure 4-3. Chassis Assembly A4, Wiring Diagram



NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX ASSEMBLY DESIGNATIONS WITH THE TRANSMITTER ASSEMBLY DESIGNATION A1; FOR EXAMPLE, A1A1. PREFIX ALL PART DESIGNATIONS WITH THE TRANSMITTER ASSEMBLY DESIGNATION A1 AND THE R-F ASSEMBLY DESIGNATION A1; FOR EXAMPLE, A1A1R1.

2. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-2.

3. FOR CHASSIS ASSEMBLY WIRING DIAGRAM, SEE FIGURE 4-3. ASSOCIATED ASSEMBLY WIRING DIAGRAMS ARE AS FOLLOWS:

ASSEMBLY	FIGURE NO.
TUNER A1A2	4-5
MEGACYCLE OSCILLATOR	4-6
DOUBLER	
MIXER AND FRACTIONAL	4-7
MC OSCILLATOR	
R-F AMPLIFIER	4-8

4. UNMARKED WIRES ARE NO. 18 AWG BARE, TINNED, SOLID COPPER. WIRES MARKED WITH A COLOR NOTE ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE NO. 24 AWG STRANDED COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND NUMBER 22 ARE NO. 22 STRANDED COPPER, TEFLON INSULATED.

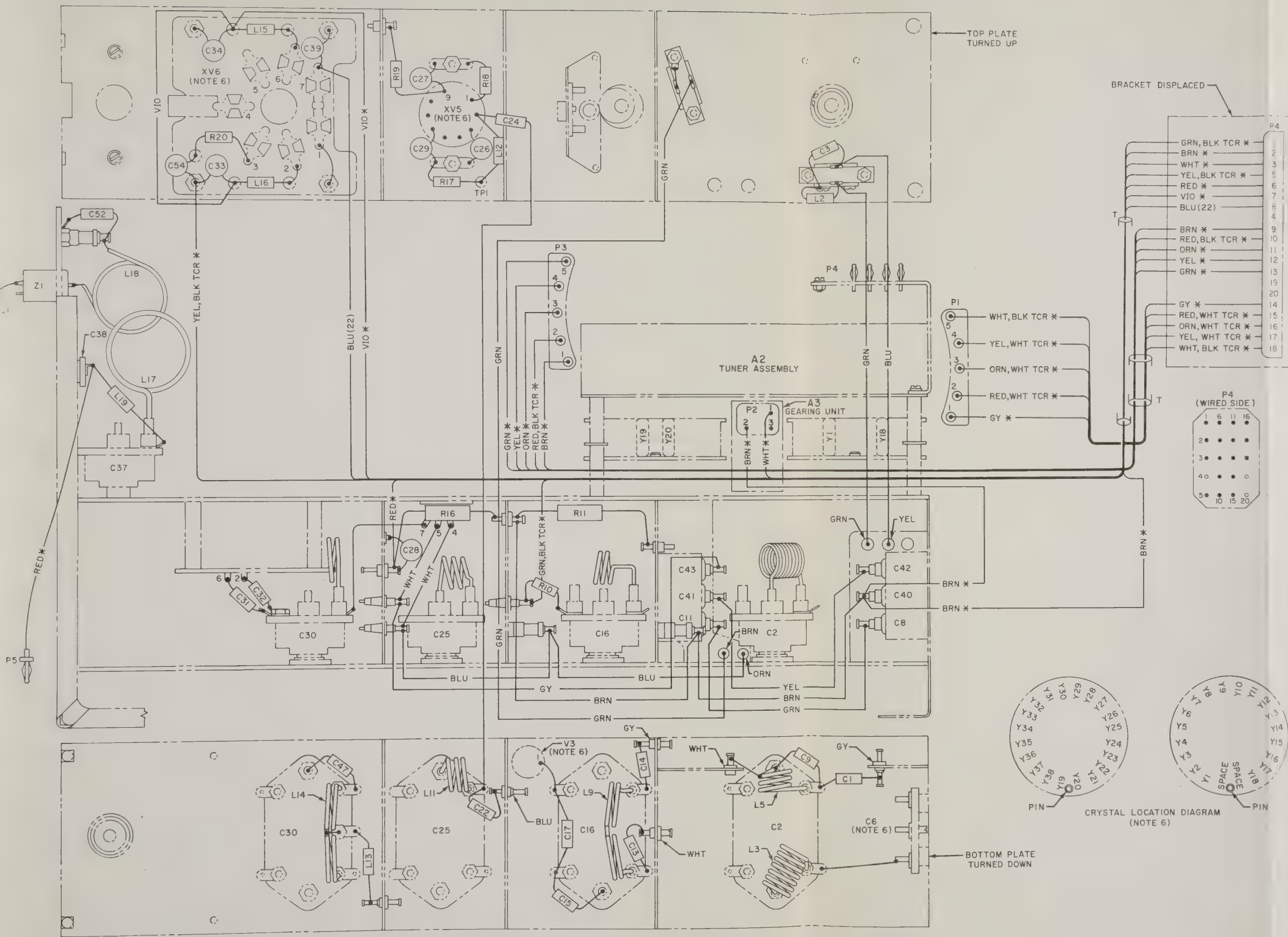
5. TEFLON TUBING OF APPROPRIATE SIZE IS INSTALLED OVER WIRES MARKED "T."

6. REFERENCE DESIGNATIONS OF C6, Y1 THROUGH Y38, AND V1 THROUGH V6 ARE PRINTED ON THE UNIT AS FOLLOWS:

REFERENCE DESIGNATION	UNIT MARKINGS
C6	C106
Y1 THROUGH Y38	Y101 THROUGH Y138
V1 THROUGH V6	V101 THROUGH V106

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Figure 4-4. Transmitter Assembly A1, Wiring Diagram



NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX ASSEMBLY DESIGNATIONS WITH THE TRANSMITTER ASSEMBLY DESIGNATION A1; FOR EXAMPLE, A1A1. PREFIX ALL PART DESIGNATIONS WITH THE TRANSMITTER ASSEMBLY DESIGNATION A1 AND THE R-F ASSEMBLY DESIGNATION A1; FOR EXAMPLE, A1A1R1.
2. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-2.
3. FOR CHASSIS ASSEMBLY WIRING DIAGRAM, SEE FIGURE 4-3. ASSOCIATED ASSEMBLY WIRING DIAGRAMS ARE AS FOLLOWS:

ASSEMBLY	FIGURE NO.
TUNER A1A2	4-5
MEGACYCLE OSCILLATOR DOUBLER	4-6
MIXER AND FRACTIONAL MC OSCILLATOR	4-7
R-F AMPLIFIER	4-8

4. UNMARKED WIRES ARE NO. 18 AWG BARE, TINNED. SOLID COPPER. WIRES MARKED WITH A COLOR NOTE ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE NO. 24 AWG STRANDED COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND NUMBER 22 ARE NO. 22 STRANDED COPPER, TEFLON INSULATED.
5. TEFLON TUBING OF APPROPRIATE SIZE IS INSTALLED OVER WIRES MARKED "T."
6. REFERENCE DESIGNATIONS OF C6, Y1 THROUGH Y38, AND V1 THROUGH V6 ARE PRINTED ON THE UNIT AS FOLLOWS:

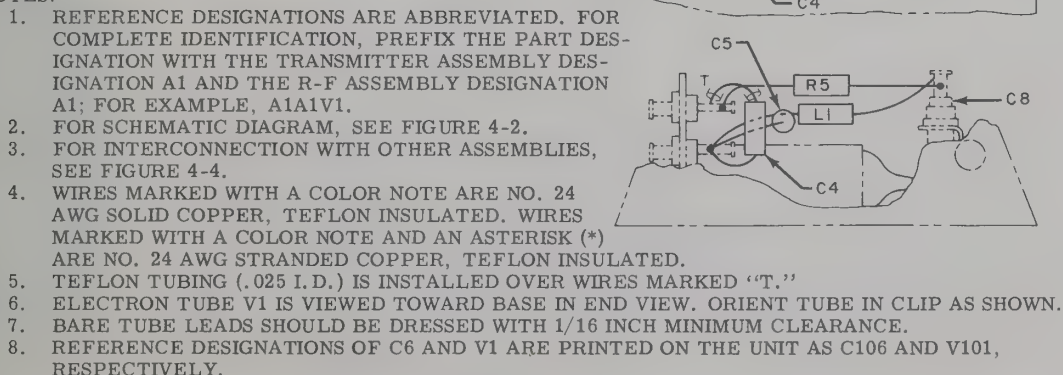
REFERENCE DESIGNATION	UNIT MARKINGS
C6	C106
Y1 THROUGH Y38	Y101 THROUGH Y138
V1 THROUGH V6	V101 THROUGH V106

Figure 4-4. Transmitter Assembly A1, Wiring Diagram

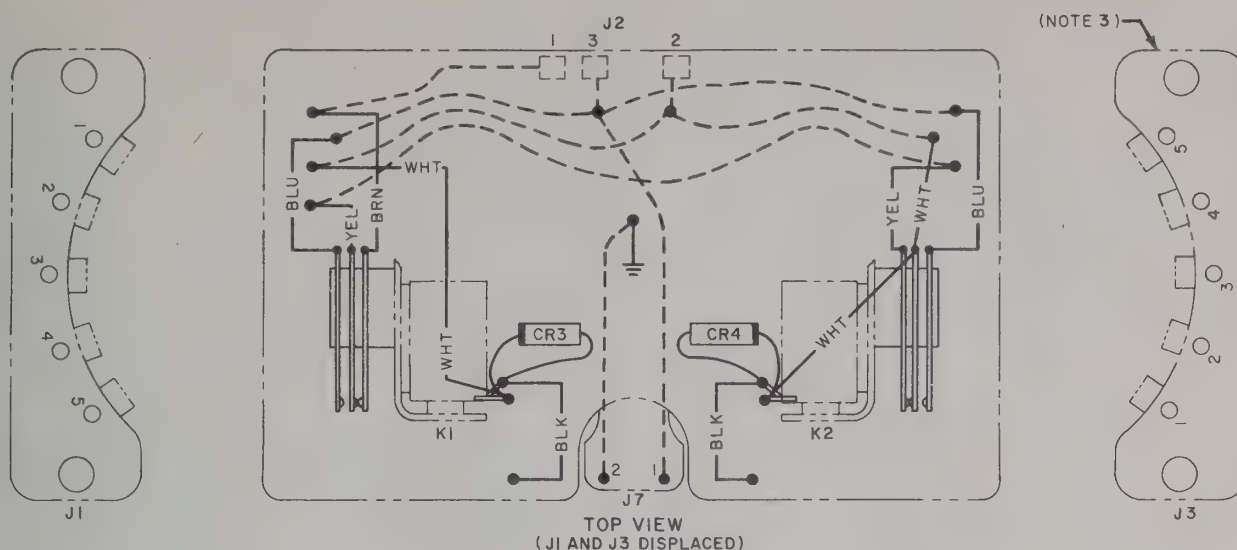


1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX THE PART DESIGNATION WITH THE TRANSMITTER ASSEMBLY DESIGNATION A1 AND THE TUNER ASSEMBLY DESIGNATION A2; FOR EXAMPLE, A1A2K1.
2. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-2.
3. FOR INTERCONNECTION WITH OTHER ASSEMBLIES, SEE FIGURE 4-2.
4. WIRES ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED.
5. DOTTED LINES INDICATE PRINTED WIRING.

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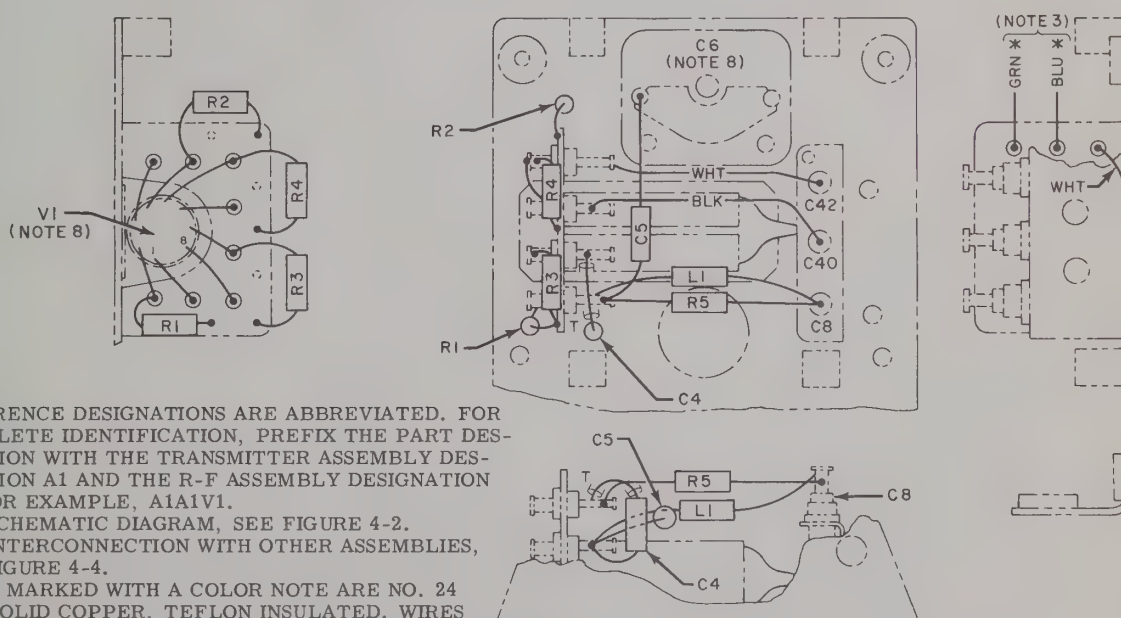


NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX THE PART DESIGNATION WITH THE TRANSMITTER ASSEMBLY DESIGNATION A1 AND THE TUNER ASSEMBLY DESIGNATION A2; FOR EXAMPLE, A1A2K1.
2. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-2.
3. FOR INTERCONNECTION WITH OTHER ASSEMBLIES, SEE FIGURE 4-2.
4. WIRES ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED.
5. DOTTED LINES INDICATE PRINTED WIRING.

22368D(TP)

Figure 4-5. Tuner Assembly A1A2, Wiring Diagram

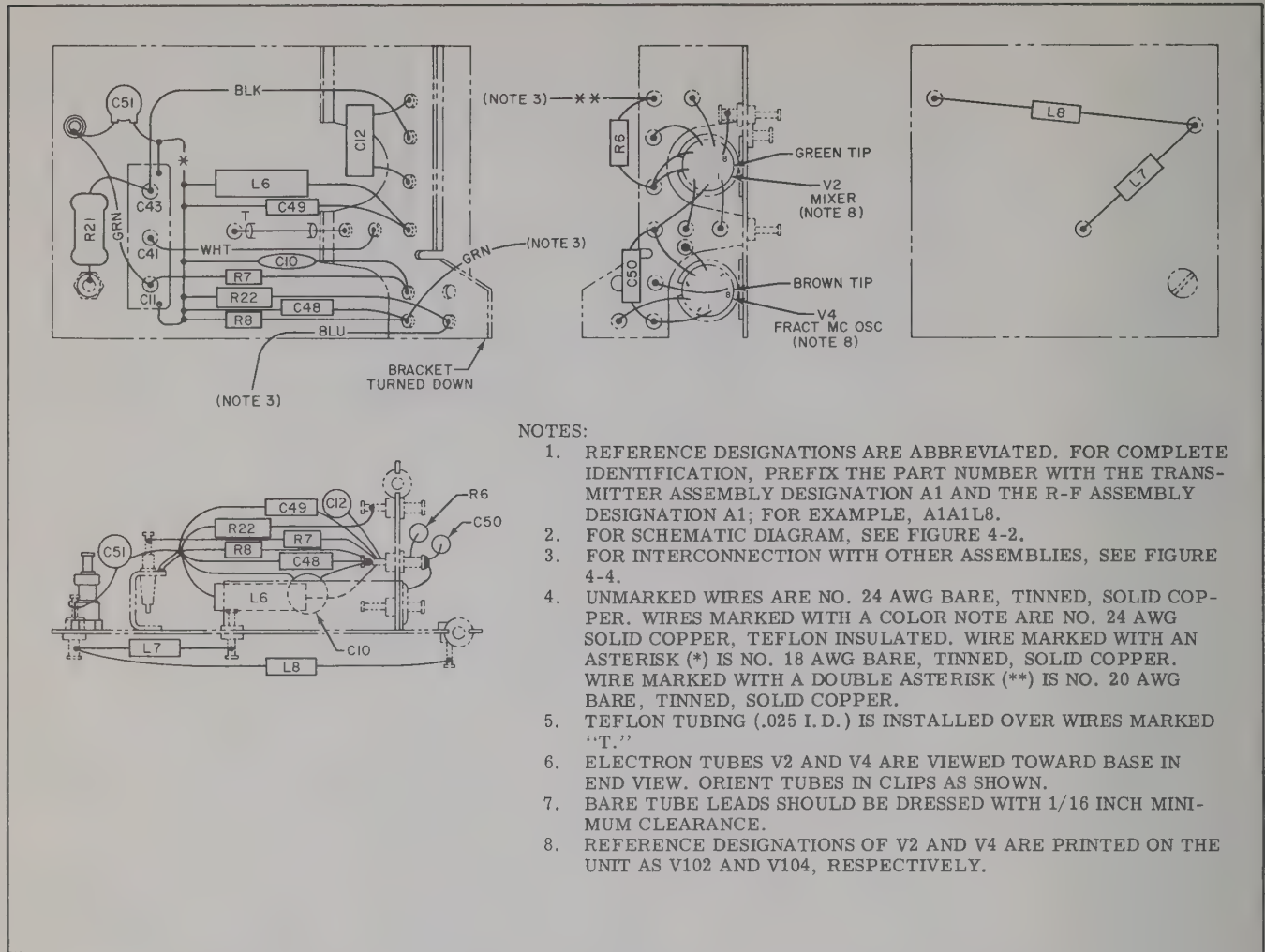


NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX THE PART DESIGNATION WITH THE TRANSMITTER ASSEMBLY DESIGNATION A1 AND THE R-F ASSEMBLY DESIGNATION A1; FOR EXAMPLE, A1A1V1.
2. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-2.
3. FOR INTERCONNECTION WITH OTHER ASSEMBLIES, SEE FIGURE 4-4.
4. WIRES MARKED WITH A COLOR NOTE ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE NO. 24 AWG STRANDED COPPER, TEFLON INSULATED.
5. TEFLON TUBING (.025 I.D.) IS INSTALLED OVER WIRES MARKED "T."
6. ELECTRON TUBE V1 IS VIEWED TOWARD BASE IN END VIEW. ORIENT TUBE IN CLIP AS SHOWN.
7. BARE TUBE LEADS SHOULD BE DRESSED WITH 1/16 INCH MINIMUM CLEARANCE.
8. REFERENCE DESIGNATIONS OF C6 AND V1 ARE PRINTED ON THE UNIT AS C106 AND V101, RESPECTIVELY.

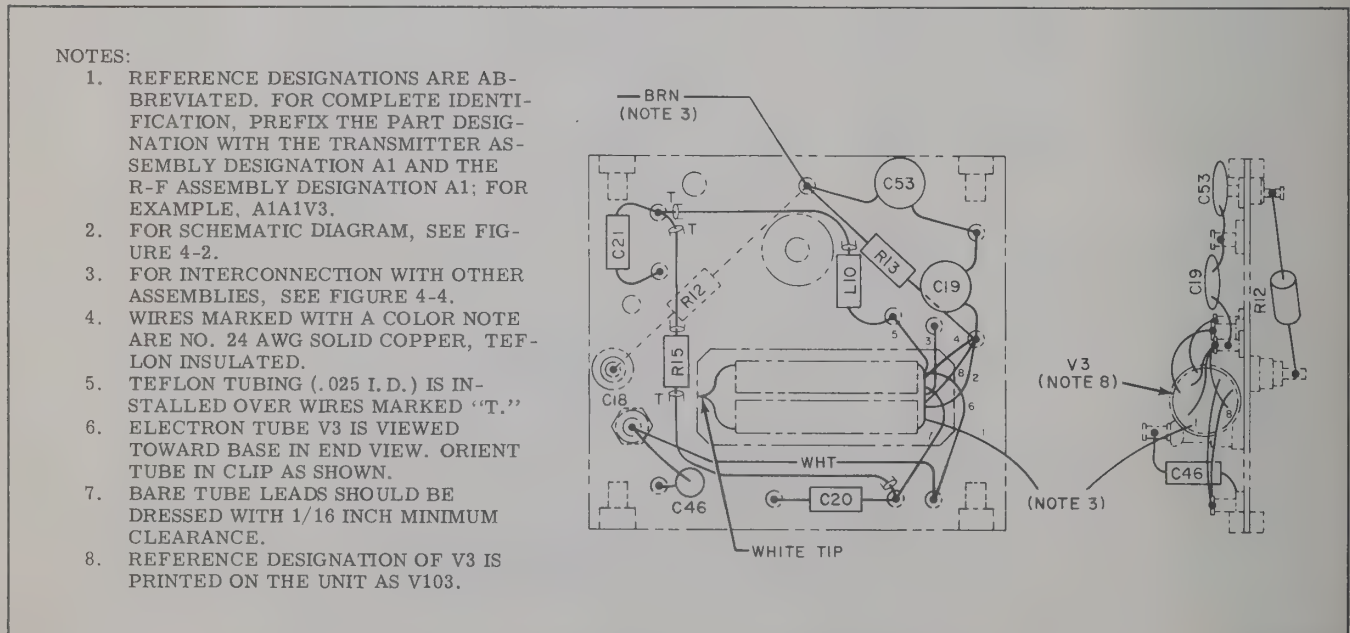
27248A(TP)

Figure 4-6. Megacycle Oscillator Doubler, Wiring Diagram



27443A(TP)

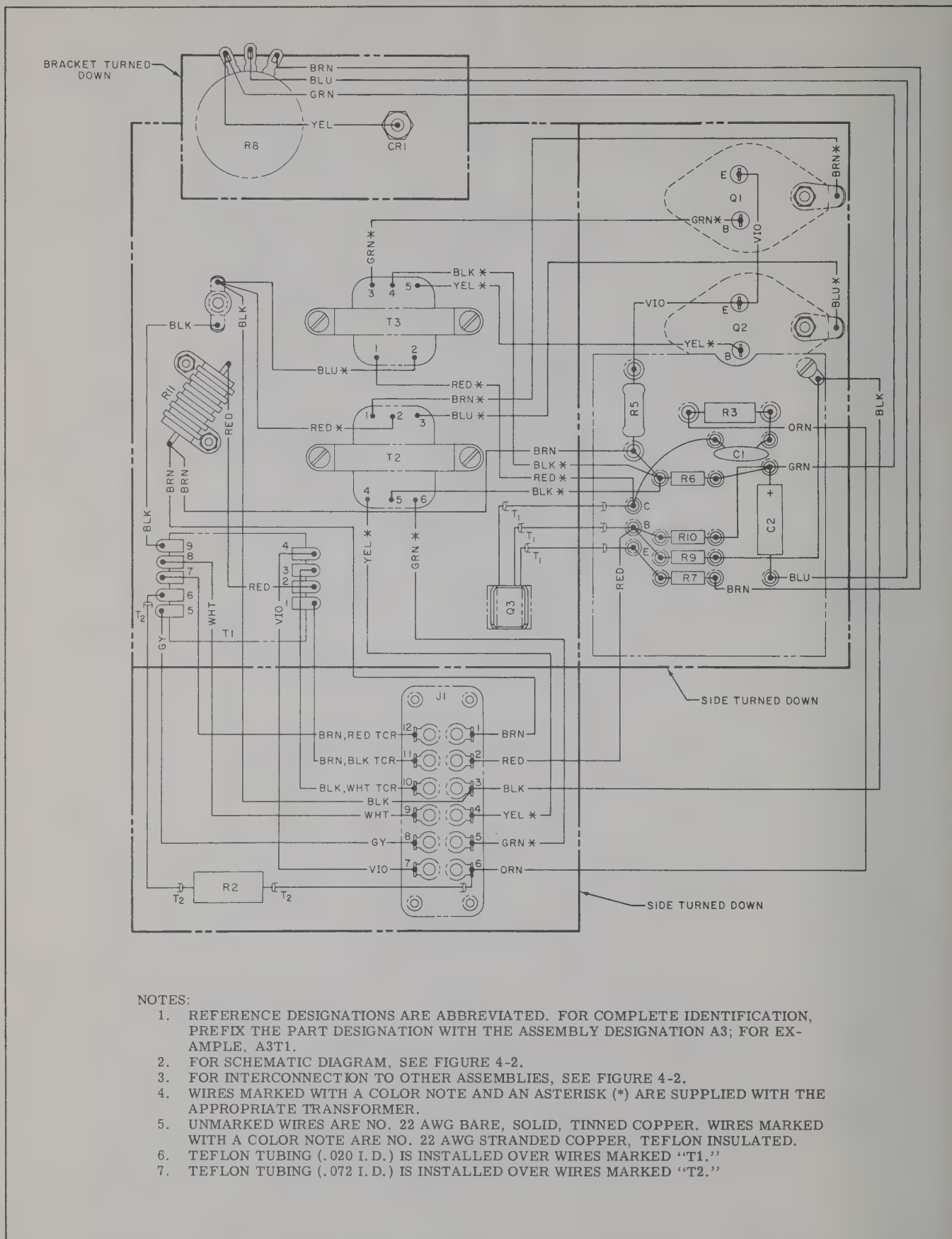
Figure 4-7. Mixer and Fractional Megacycle Oscillator, Wiring Diagram



27553B(TP)

Figure 4-8. R-f Amplifier, Wiring Diagram

27719A(TP)



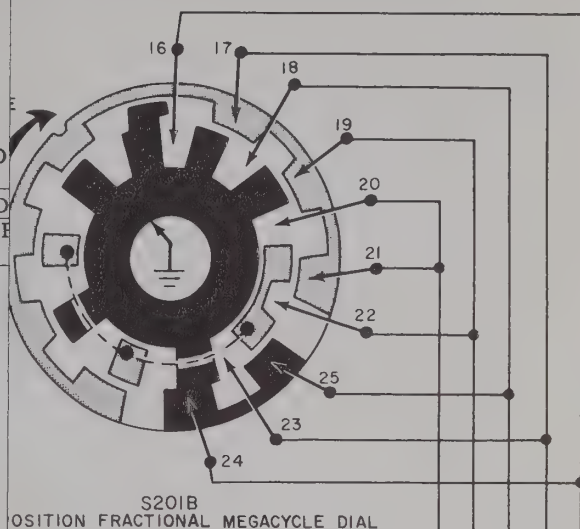
NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX THE PART DESIGNATION WITH THE ASSEMBLY DESIGNATION A3; FOR EXAMPLE, A3T1.
2. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-2.
3. FOR INTERCONNECTION TO OTHER ASSEMBLIES, SEE FIGURE 4-2.
4. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE SUPPLIED WITH THE APPROPRIATE TRANSFORMER.
5. UNMARKED WIRES ARE NO. 22 AWG BARE, SOLID, TINNED COPPER. WIRES MARKED WITH A COLOR NOTE ARE NO. 22 AWG STRANDED COPPER, TEFLON INSULATED.
6. TEFLON TUBING (.020 I.D.) IS INSTALLED OVER WIRES MARKED "T1."
7. TEFLON TUBING (.072 I.D.) IS INSTALLED OVER WIRES MARKED "T2."

Figure 4-10. Modulator A3, Wiring Diagram

27531A(TP)

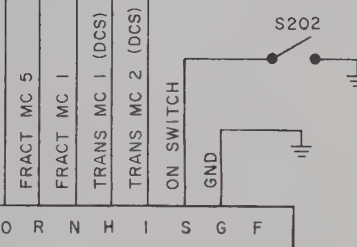
TABULATION OF GROUPS		
S201A	SCS OPERATION GROUP A, B, C, D, E (Note 3)	DIAGRAM
118	C, E	
119	A, D	
120	A, B, E	
121	B, C	
122	C, D	
123	D, E	
124	E	
125	A	
126	B	
127	C	
128	D	
129	A, E	
130	A, B	
131	A, B, C	
132	A, B, C, D	
133	B, C, D, E	
134	A, C, D, E	
135	B, D, E	



S201B POSITION FRACTIONAL MEGACYCLE DIAL

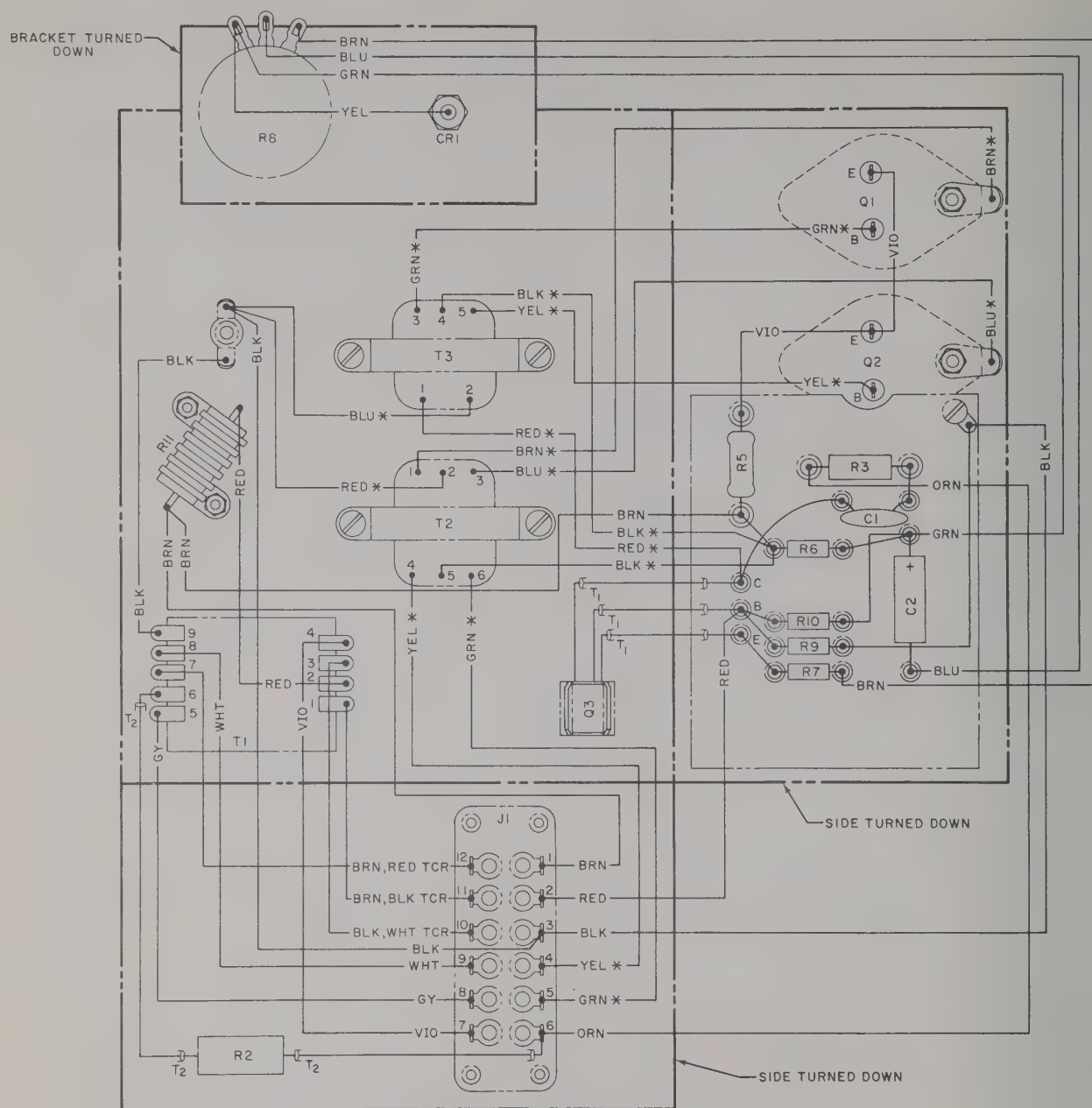
NOTES:

1. FOR WIRING DIAGRAM, SEE...
2. SWITCH SECTIONS S201A AND S201B FOR IDENTIFICATION OF...
3. S201A CONTROLS TERMINALS GROUP N, O, P, Q, R. AT TERMINALS IN EACH GROUP OF THE GROUP ARE CONNECTED TO THE TABLE.
4. TERMINALS H, I, J, K, AND L ARE INTERNAL SWITCH. SEE TAB...



21592A(TP)

Figure 4-11. C-82A Control Unit, Schematic Diagram



NOTES:

1. REFERENCE DESIGNATIONS ARE ABBREVIATED. FOR COMPLETE IDENTIFICATION, PREFIX THE PART DESIGNATION WITH THE ASSEMBLY DESIGNATION A3; FOR EXAMPLE, A3T1.
2. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-2.
3. FOR INTERCONNECTION TO OTHER ASSEMBLIES, SEE FIGURE 4-2.
4. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE SUPPLIED WITH THE APPROPRIATE TRANSFORMER.
5. UNMARKED WIRES ARE NO. 22 AWG BARE, SOLID, TINNED COPPER. WIRES MARKED WITH A COLOR NOTE ARE NO. 22 AWG STRANDED COPPER, TEFLON INSULATED.
6. TEFLON TUBING (.020 I. D.) IS INSTALLED OVER WIRES MARKED "T1."
7. TEFLON TUBING (.072 I. D.) IS INSTALLED OVER WIRES MARKED "T2."

Figure 4-10. Modulator A3, Wiring Diagram

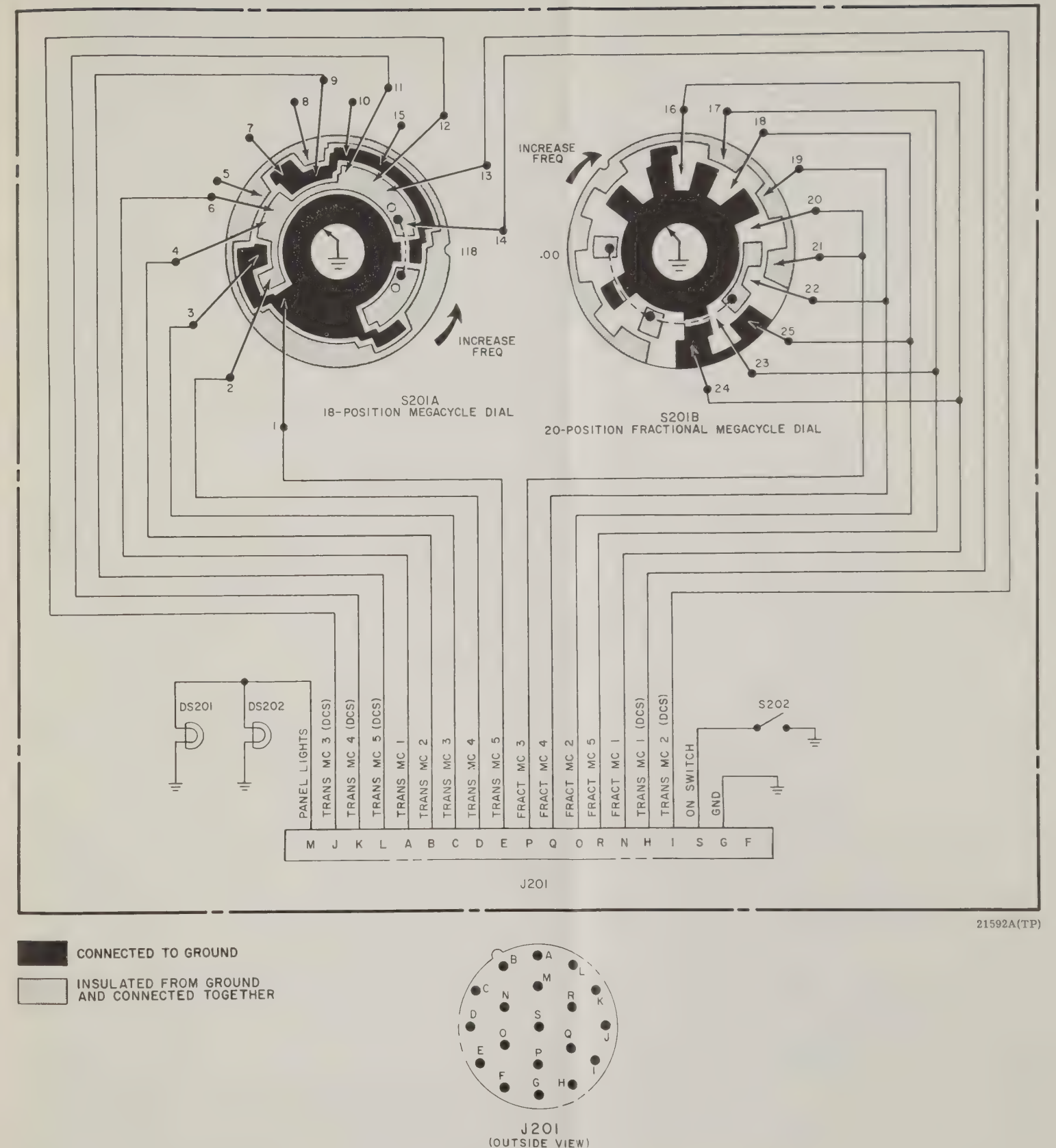
27531A(TP)

TABULATION OF GROUNDED TERMINALS IN EACH GROUP

S201A	SCS OPERATION GROUP A, B, C, D, E (Note 3)	DCS OPERATION GROUP H, I, J, K, L (Note 4)	S201B	GROUP N, O, P, Q, R (Note 3)
118	C, E	L	.00	N, O
119	A, D	H	.05	N, O, P
120	A, B, E	I	.10	N, R
121	B, C	J	.15	N, O, P, Q
122	C, D	K	.20	Q
123	D, E	H, L	.25	O, P, Q, R
124	E	H, I	.30	P
125	A	H, I, J	.35	N, P, Q, R
126	B	H, I, J, K	.40	O
127	C	I, J, K, L	.45	O, Q, R
128	D	H, J, K, L	.50	N
129	A, E	I, K, L	.55	N, P, R
130	A, B	J, L	.60	R
131	A, B, C	H, K	.65	O, Q
132	A, B, C, D	H, I, L	.70	Q, R
133	B, C, D, E	I, J	.75	P, R
134	A, C, D, E	J, K	.80	P, Q
135	B, D, E	K, L	.85	N, Q
			.90	O, P
			.95	N, O, R

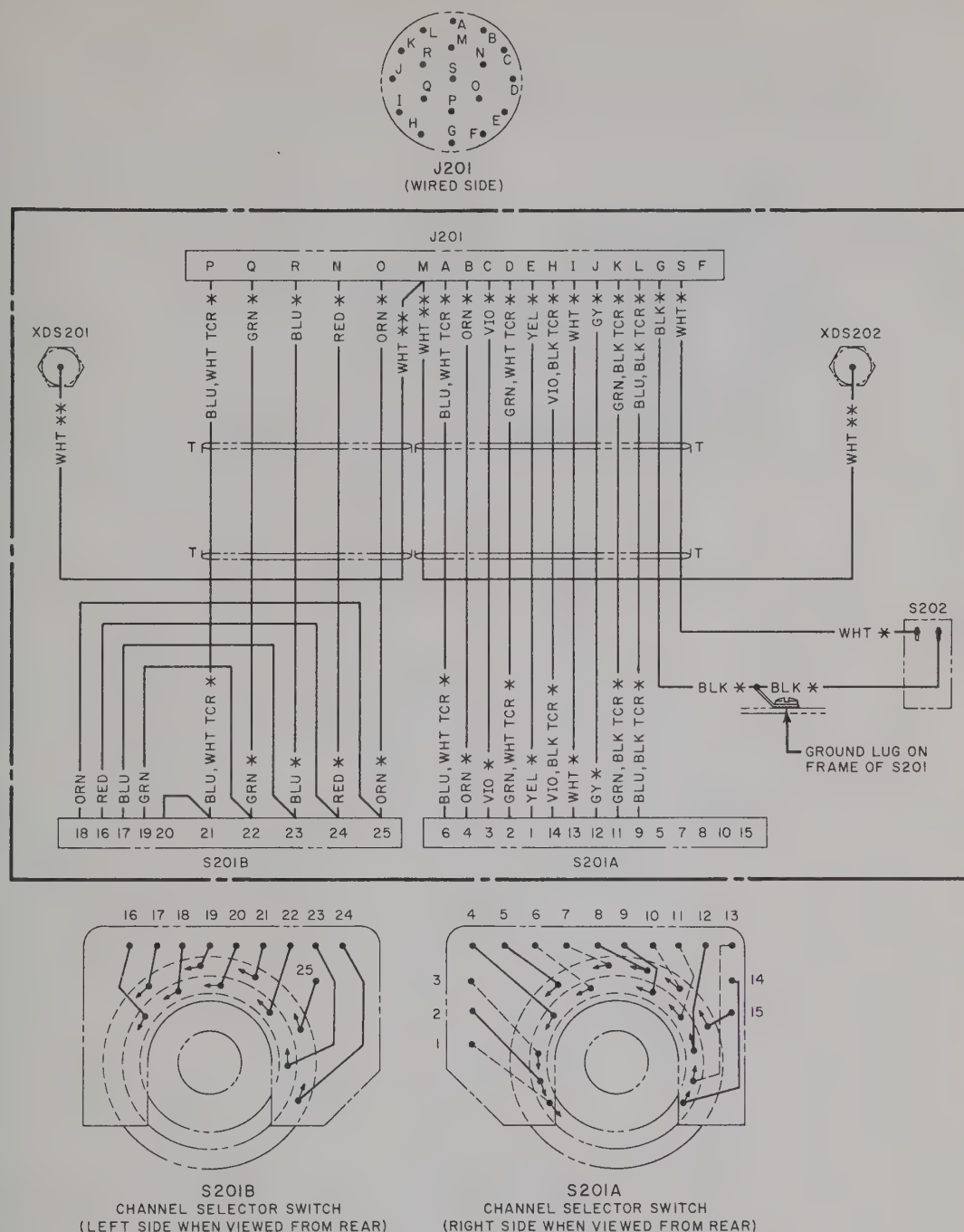
NOTES:

- FOR WIRING DIAGRAM, SEE FIGURE 4-12.
- SWITCH SECTIONS S201A AND S201B ARE SHOWN IN 118.00-MC POSITION. FOR IDENTIFICATION OF SWITCH TERMINALS, SEE FIGURE 4-12.
- S201A CONTROLS TERMINAL GROUP A, B, C, D, E OF J201; S201B CONTROLS GROUP N, O, P, Q, R. AT EACH POSITION OF S201A AND S201B, CERTAIN TERMINALS IN EACH GROUP ARE GROUNDED AND THE OTHER TERMINALS OF THE GROUP ARE CONNECTED TOGETHER, FREE OF GROUND. SEE TABLE.
- TERMINALS H, I, J, K, AND L ARE FOR "DCS" OPERATION FROM AN EXTERNAL SWITCH. SEE TABLE.



21592A(TP)

Figure 4-11. C-82A Control Unit, Schematic Diagram

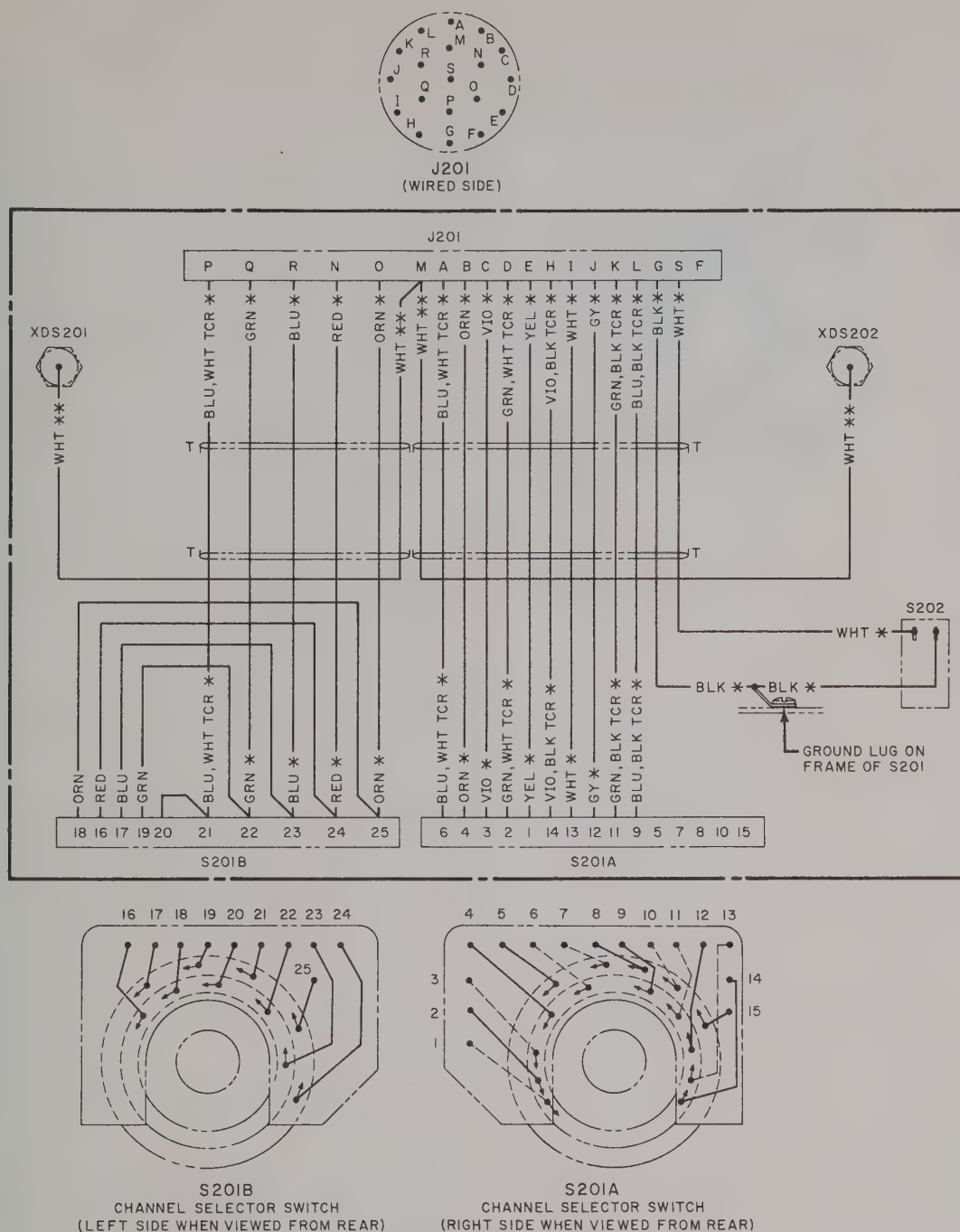


NOTES:

1. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-11.
2. UNMARKED WIRE IS NO. 24 AWG BARE, TINNED, SOLID COPPER. WIRES MARKED WITH COLOR NOTE ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE NO. 22 AWG STRANDED COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND A DOUBLE ASTERISK (**) ARE NO. 20 AWG STRANDED COPPER, TEFLON INSULATED.
3. WIRES OR GROUPS OF WIRES MARKED "T" ARE COVERED WITH TRANSPARENT VINYLITE TUBING OF APPROPRIATE SIZE.

Figure 4-12. C-82A Control Unit, Wiring Diagram

21591A(TP)



NOTES:

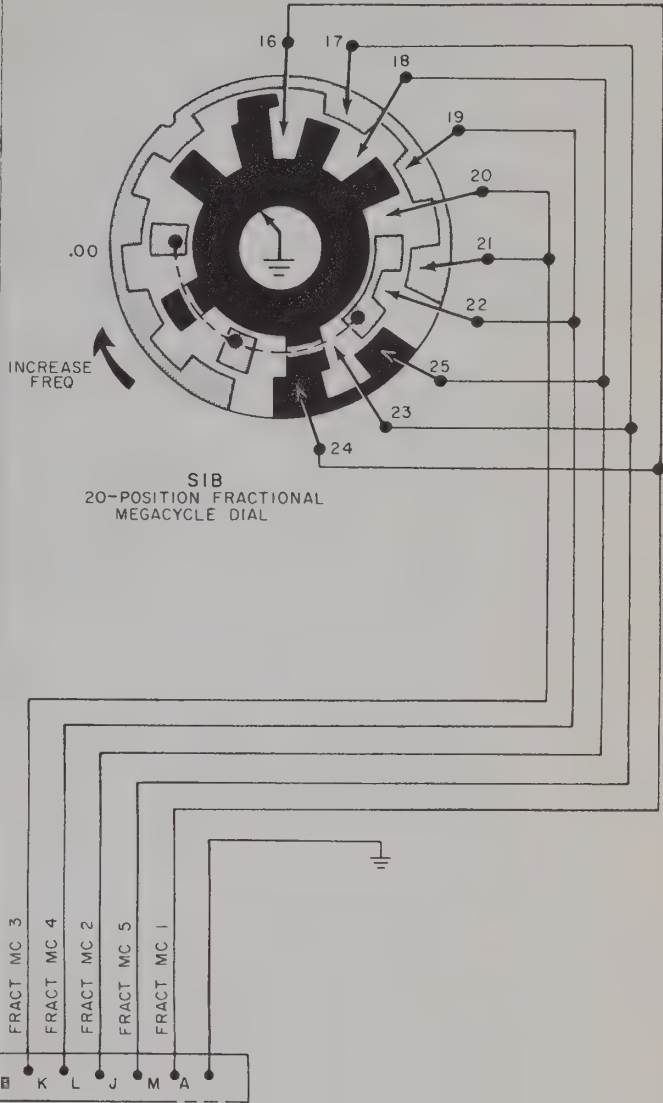
1. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-11.
2. UNMARKED WIRE IS NO. 24 AWG BARE, TINNED, SOLID COPPER. WIRES MARKED WITH COLOR NOTE ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND AN ASTERISK (*) ARE NO. 22 AWG STRANDED COPPER, TEFLON INSULATED. WIRES MARKED WITH A COLOR NOTE AND A DOUBLE ASTERISK (**) ARE NO. 20 AWG STRANDED COPPER, TEFLON INSULATED.
3. WIRES OR GROUPS OF WIRES MARKED "T" ARE COVERED WITH TRANSPARENT VINYLITE TUBING OF APPROPRIATE SIZE.

Figure 4-12. C-82A Control Unit, Wiring Diagram

21591A(TP)

TABULATION OF GROUNDED

S1A	GROUP B, G, U, T, R	GROUP S, Q, P, O, N (SCS)
118	B, G, T	P, N
119	B, G, U, R	S, O
120	B, G, U, T	S, Q, N
121	G, U, T, R	Q, P
122	U, T, R	P, O
123	T, R	O, N
124	B, R	N
125	G	S
126	U	Q
127	T	P
128	R	O
129	B	S, N
130	B, G	S, Q
131	G, U	S, Q, P
132	U, T	S, Q, P, O
133	B, T, R	Q, P, O, N
134	G, R	S, P, O, N
135	B, U	Q, O, N



NOTES:

1. FOR WIRING DIAGRAM, SEE FIGU
2. SWITCH SECTIONS S1A AND S1B A
3. S1A CONTROLS TERMINAL GROU
E, F, H. S1B CONTROLS TERMIN
TION OF S1A AND S1B, CERTAIN
ED AND THE OTHER TERMINALS
ER FREE OF GROUND. SEE TABL
4. TERMINALS C, D, E, F, AND H A
TERNAL SWITCH. SEE TABLE.

24022A(TP)

4-13. CC-10A Custom Control Unit, Schematic Diagram

TABULATION OF GROUNDED TERMINALS IN EACH GROUP					
S1A	GROUP B, G, U, T, R	GROUP S, Q, P, O, N (SCS)	GROUP C, D, E, F, H (DCS)	S1B	GROUP A, J, K, L, M
118	B, G, T	P, N	H	.00	A, J
119	B, G, U, R	S, O	C	.05	A, J, K
120	B, G, U, T	S, Q, N	D	.10	A, M
121	G, U, T, R	Q, P	E	.15	A, J, K, L
122	U, T, R	P, O	F	.20	L
123	T, R	O, N	C, H	.25	J, K, L, M
124	B, R	N	C, D	.30	K
125	G	S	C, D, E	.35	A, K, L, M
126	U	Q	C, D, E, F	.40	J
127	T	P	D, E, F, H	.45	J, L, M
128	R	O	C, E, F, H	.50	A
129	B	S, N	D, F, H	.55	A, K, M
130	B, G	S, Q	E, H	.60	M
131	G, U	S, Q, P	C, F	.65	J, L
132	U, T	S, Q, P, O	C, D, H	.70	L, M
133	B, T, R	Q, P, O, N	D, E	.75	K, M
134	G, R	S, P, O, N	E, F	.80	K, L
135	B, U	Q, O, N	F, H	.85	A, L
				.90	J, K
				.95	A, J, M

NOTES:

1. FOR WIRING DIAGRAM, SEE FIGURE 4-14.
2. SWITCH SECTIONS S1A AND S1B ARE SHOWN IN THE 118.00-MC POSITION.
3. S1A CONTROLS TERMINAL GROUPS B, G, U, T, R; S, Q, P, O, N; AND C, D, E, F, H. S1B CONTROLS TERMINAL GROUP A, J, K, L, M. AT EACH POSITION OF S1A AND S1B, CERTAIN TERMINALS IN EACH GROUP ARE GROUNDED AND THE OTHER TERMINALS OF THE GROUP ARE CONNECTED TOGETHER FREE OF GROUND. SEE TABLE.
4. TERMINALS C, D, E, F, AND H ARE FOR "DCS" OPERATION FROM AN EXTERNAL SWITCH. SEE TABLE.

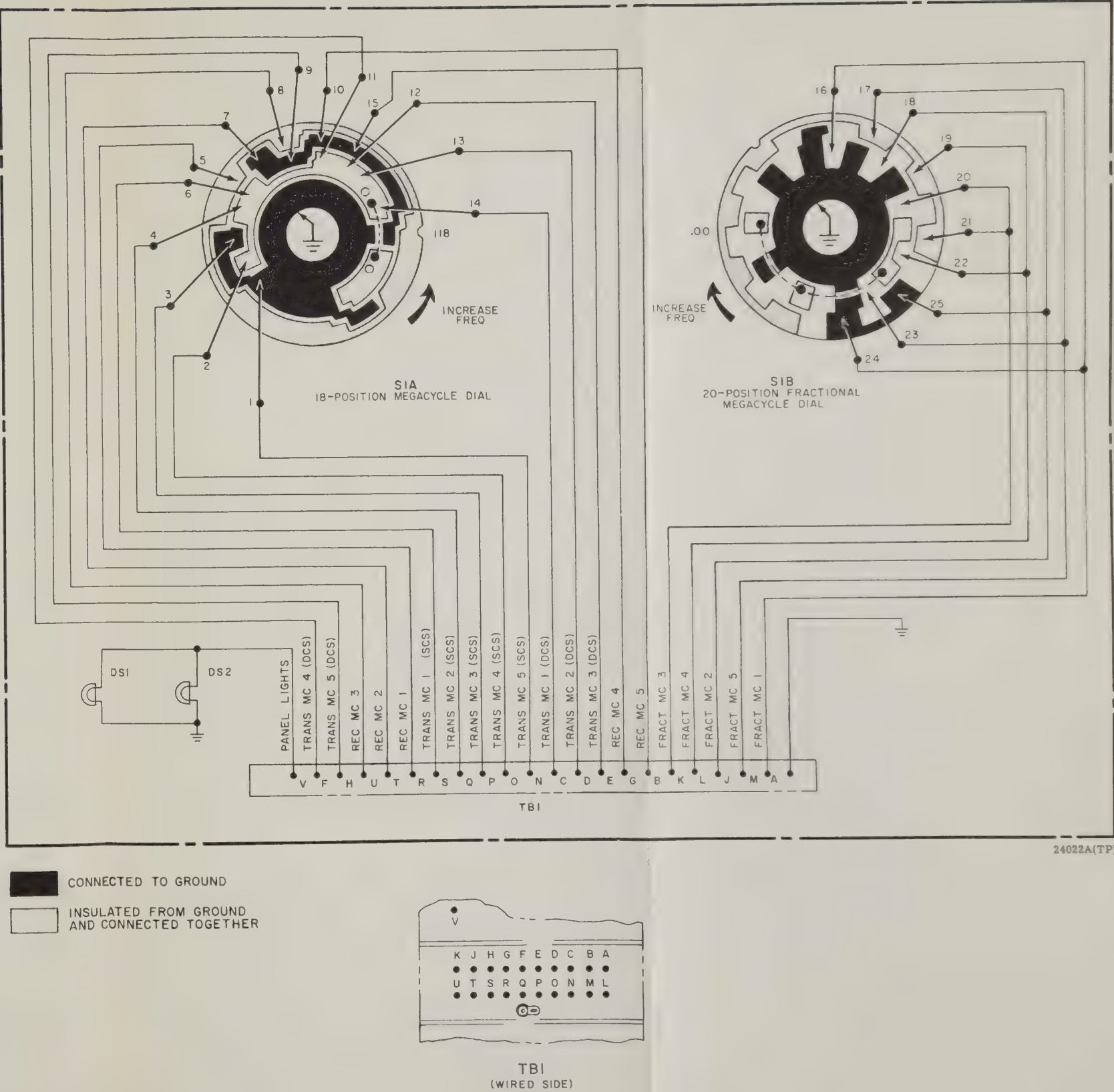
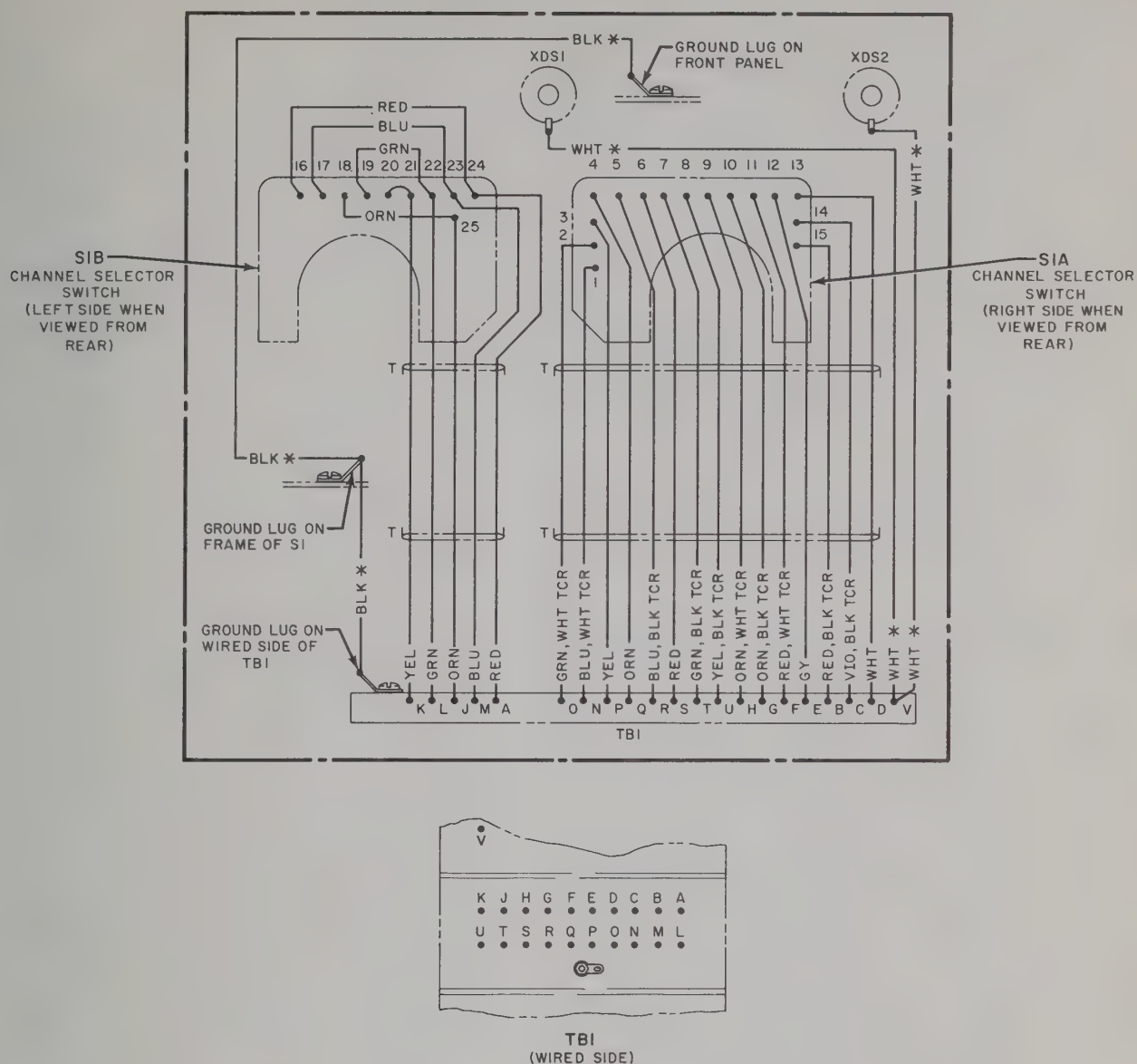


Figure 4-13. CC-10A Custom Control Unit, Schematic Diagram



NOTES:

1. FOR SCHEMATIC DIAGRAM, SEE FIGURE 4-13.
2. UNMARKED WIRE IS NO. 24 AWG BARE, TINNED, SOLID COPPER. WIRES MARKED WITH COLOR NOTE ARE NO. 24 AWG SOLID COPPER, TEFLON INSULATED. WIRES MARKED WITH COLOR NOTE AND ASTERISK (*) ARE NO. 22 AWG TEFLON INSULATED.
3. GROUPS OF WIRES MARKED "T" ARE COVERED WITH VINYLITE TUBING OF APPROPRIATE SIZE.

Figure 4-14. CC-10A Custom Control Unit, Wiring Diagram

24021A(TP)

SECTION V

PARTS LIST

TABLE 5-1. MANUFACTURERS' CODES

<u>Code</u>	<u>Name and Address</u>
AB	Allen-Bradley Co. Milwaukee, Wisconsin
AMP	Amphenol-Borg Electronics Corp. Broadview (Chicago), Illinois
CLIP	Clifton Precision Products Co. Clifton Heights, Pennsylvania
CMPB	Colin Campbell Co., Inc. Danbury, Connecticut
DABU	Dale Products, Inc. Columbus, Nebraska
EMM	Electro Motive Manufacturing Co. Willimantic, Connecticut
FML	Fansteel Metallurgical Corp. North Chicago, Illinois
GBR	Globar Division Carborundum Co. Niagara Falls, New York
HUG	Hughes Products Division of Hughes Aircraft Co. Los Angeles, California
JFE	Jeffers Electronics Corp. St. Marys, Pennsylvania
JON	E. F. Johnson Co. Waseca, Minnesota
MOTR	Motorola Inc. Semiconductor Products Division Phoenix, Arizona
SLM	Solar Manufacturing Corp. New York, New York
SPR	Sprague Electric Co. North Adams, Massachusetts
TI	Texas Instruments, Inc. Semiconductor-Components Division Houston, Texas
UNT	United Transformer Co. New York, New York

TABLE 5-2. PARTS LIST

Reference Designation	Description	ARC Part No.	Manufacturer & Part No.
A1, TRANSMITTER ASSEMBLY, ARC-27569			
A1A1	R-F ASSEMBLY, P/O 27569	REF	
A1A2	TUNER ASSEMBLY	22367-0028	
A1A3	GEARING UNIT ASSEMBLY	22277-0028	
A1P1	CONNECTOR, Plug, electrical	19339	
A1P2	CONNECTOR ASSEMBLY	22190	
A1P3	CONNECTOR, Same as A1P1		
A1P4	CONNECTOR ASSEMBLY	27575	
A1P5	PIN PLUG	22736	
A1A1, R-F ASSEMBLY ¹			
C1	CAPACITOR, Fixed, mica, 51 $\mu\mu\text{f}$ ± 5 per cent, 500 vdcw	8870-0510	EMM VTDM15
C2	CAPACITOR, Variable, air	21326	
C3	CAPACITOR, Fixed, ceramic, 120 $\mu\mu\text{f}$ ± 5 per cent, 500 vdcw	8796-0121	
C4	CAPACITOR, Fixed, same as C1		
C5	CAPACITOR, Fixed, same as C1		
C6	CAPACITOR, Variable, air	19603	
C7	NOT USED		
C8	CAPACITOR, Fixed, ceramic, 1000 $\mu\mu\text{f}$ ± 20 per cent, 500 vdcw	8832	SLM CF123XD-102Z-3K
C9	CAPACITOR, Fixed, ceramic, 9 $\mu\mu\text{f}$ ± 0.25 $\mu\mu\text{f}$, 500 vdcw	8791-9901	
C10	CAPACITOR, Fixed, ceramic, 0.0022 μf , 500 vdcw	8625-9224	
C11	CAPACITOR, Fixed, same as C8		
C12	CAPACITOR, Fixed, ceramic, 20 $\mu\mu\text{f}$ ± 20 per cent, 500 vdcw	8795-0200	
C13	CAPACITOR, Fixed, ceramic, 20 $\mu\mu\text{f}$ ± 2 per cent, 500 vdcw	8791-0200	
C14	CAPACITOR, Fixed, same as C13		
C15	CAPACITOR, Fixed, ceramic, 7 $\mu\mu\text{f}$ ± 0.25 $\mu\mu\text{f}$, 500 vdcw	8791-9701	
C16	CAPACITOR, Variable, same as C2		
C17	CAPACITOR, Fixed, ceramic, 4 $\mu\mu\text{f}$ ± 0.25 $\mu\mu\text{f}$, 500 vdcw	8791-9401	
C18	CAPACITOR, Fixed, same as C8		
C19	CAPACITOR, Fixed, ceramic, 150 $\mu\mu\text{f}$ ± 20 per cent, 500 vdcw	24541-0151	SPR 40C202
C20	CAPACITOR, Fixed, ceramic, 120 $\mu\mu\text{f}$ ± 5 per cent, 500 vdcw	8796-0121	
C21	CAPACITOR, Fixed, same as C20		
C22	CAPACITOR, Fixed, same as C1		
C23	NOT USED		
C24	CAPACITOR, Fixed, same as C1		
C25	CAPACITOR, Variable, same as C2		
C26	CAPACITOR, Fixed, same as C19		
C27	CAPACITOR, Fixed, same as C19		
C28	CAPACITOR, Fixed, same as C10		
C29	CAPACITOR, Fixed, same as C19		
C30	CAPACITOR, Variable, air	27288	
C31	CAPACITOR, Fixed, ceramic, 30 $\mu\mu\text{f}$ ± 2 per cent, 500 vdcw	8792-0300	
C32	CAPACITOR, Fixed, same as C31		
C33	CAPACITOR, Fixed, ceramic, 680 $\mu\mu\text{f}$ ± 100 -0 per cent	8624-0681	

¹Reference designations are abbreviated; for complete identification, prefix with applicable assembly designation.

TABLE 5-2. PARTS LIST (Cont.)

Reference Designation ¹	Description	ARC Part No.	Manufacturer & Part No.
A1A1, R-F ASSEMBLY (Cont.)			
C34	CAPACITOR, Fixed, same as C33		
C35	NOT USED		
C36	NOT USED		
C37	CAPACITOR, Variable, air	27188	
C38	CAPACITOR, Fixed, ceramic, 470 μmf ± 20 per cent, 500 vdcw	28551	AB SS5A
C39	CAPACITOR, Fixed, same as C33		
C40	CAPACITOR, Fixed, same as C8		
C41	CAPACITOR, Fixed, same as C8		
C42	CAPACITOR, Fixed, same as C8		
C43	CAPACITOR, Fixed, same as C8		
C44	CAPACITOR, Fixed, same as C8		
C45	CAPACITOR, Fixed, same as C8		
C46	CAPACITOR, Fixed, same as C20		
C47	CAPACITOR, Fixed, ceramic, 8 μmf ± 0.25 μmf , 500 vdcw	8791-9801	
C48	CAPACITOR, Fixed, ceramic, 15 μmf ± 2 per cent, 500 vdcw	8765-0150	
C49	CAPACITOR, Fixed, ceramic, 120 μmf ± 5 per cent, 500 vdcw	8770-0121	
C50	CAPACITOR, Fixed, same as C48		
C51	CAPACITOR, Fixed, ceramic, 470 μmf ± 100 -0 per cent, 500 vdcw	8624-0471	
C52	CAPACITOR, Fixed, ceramic, 12 μmf ± 2 per cent, 500 vdcw	8791-0120	
C53	CAPACITOR, Fixed, same as C19		
C54	CAPACITOR, Fixed, same as C33		
J1	JACK, Tip	5215	
L1	CHOKE, R-f, 6.8 μh ± 10 per cent	8877-9681	JFE 10102-628
L2	CHOKE, R-f, 0.68 μh ± 20 per cent	8877-9682	JFE 10100-628
L3	COIL	19923	
L4	NOT USED		
L5	COIL	19920	
L6	CHOKE, R-f, 12 μh ± 10 per cent	8877-0120	JFE 10102-634
L7	CHOKE, R-f, 3 μh ± 10 per cent	14141	JFE 10100-652
L8	CHOKE, R-f, same as L7		
L9	COIL	19619	
L10	CHOKE, R-f, same as L7		
L11	COIL	27779	
L12	CHOKE, R-f, 6 μh	22206	
L13	CHOKE, R-f, 1 μh ± 20 per cent	8877-9101	JFE 10100-630
L14	COIL	27567	
L15	CHOKE, R-f, same as L7		
L16	CHOKE, R-f, same as L7		
L17A	COIL	27643	
L17B	COIL	27644	
L18	COIL	27687	
L19	CHOKE, R-f	28053	
R1	RESISTOR, Fixed, comp, 10 ohms ± 10 per cent, 1/4 w	204-0100	GBR 997-CX
R2	RESISTOR, Fixed, comp, 220 ohms ± 10 per cent, 1/4 w	200-0221	AB CB2211
R3	RESISTOR, Fixed, comp, 33,000 ohms ± 10 per cent, 1/4 w	200-0333	AB CB3331

¹Reference designations are abbreviated; for complete identification, prefix with applicable assembly designation.

TABLE 5-2. PARTS LIST (Cont.)

Reference Designation ¹	Description	ARC Part No.	Manufacturer & Part No.
A1A1, R-F ASSEMBLY (Cont.)			
R4	RESISTOR, Fixed, same as R2		
R5	RESISTOR, Fixed, comp, 15,000 ohms ± 5 per cent, 1/2 w	201-0153	AB EB1535
R6	RESISTOR, Fixed, comp, 470 ohms ± 10 per cent, 1/4 w	200-0471	AB CB4711
R7	RESISTOR, Fixed, comp, 10,000 ohms ± 10 per cent, 1/4 w	200-0103	AB CB1031
R8	RESISTOR, Fixed, comp, 100,000 ohms ± 10 per cent, 1/4 w	200-0104	AB CB1041
R9	NOT USED		
R10	RESISTOR, Fixed, comp, 27,000 ohms ± 10 per cent, 1/4 w	200-0273	AB CB2731
R11	RESISTOR, Fixed, comp, 750 ohms ± 5 per cent, 1 w	202-0751	AB GB7515
R12	RESISTOR, Fixed, comp, 4,700 ohms ± 5 per cent, 1/2 w	201-0472	AB CB4725
R13	RESISTOR, Fixed, comp, 360 ohms ± 5 per cent, 1/2 w	201-0361	AB CB3615
R14	NOT USED		
R15	RESISTOR, Fixed, same as R12		
R16	RESISTOR, Fixed, comp, 2,400 ohms ± 5 per cent, 2 w	203-0242	AB HB2425
R17	RESISTOR, Fixed, comp, 27,000 ohms ± 5 per cent, 1/2 w	201-0273	AB EB2735
R18	RESISTOR, Fixed, comp, 220 ohms ± 5 per cent, 1/2 w	201-0221	AB EB2215
R19	RESISTOR, Fixed, same as R12		
R20	RESISTOR, Fixed, comp, 1,000 ohms ± 5 per cent, 1/2 w	201-0102	AB EB1025
R21	RESISTOR, Fixed, ww, 250 ohms ± 3 per cent, 3 w	209-0251	
R22	RESISTOR, Fixed, comp, 120 ohms ± 5 per cent, 1/2 w	201-0121	AB EB1215
V1	ELECTRON TUBE, Type 6021	700-0136	
V2	ELECTRON TUBE, Same as V1		
V3	ELECTRON TUBE, Type 5840	700-0129	
V4	ELECTRON TUBE, Type 5718	700-0122	
V5	ELECTRON TUBE, Type 5686	700-0121	
V6	ELECTRON TUBE, Type 5894	700-0223	
XV5	SOCKET, Electron tube	21547	
XV6	SOCKET, Electron tube	26636	
Y1	CRYSTAL, Quartz, 54.025 mc	19658-5402	
Y2	CRYSTAL, Quartz, 54.525 mc	19658-5452	
Y3	CRYSTAL, Quartz, 55.025 mc	19658-5502	
Y4	CRYSTAL, Quartz, 55.525 mc	19658-5552	
Y5	CRYSTAL, Quartz, 56.025 mc	19658-5602	
Y6	CRYSTAL, Quartz, 56.525 mc	19658-5652	
Y7	CRYSTAL, Quartz, 57.025 mc	19658-5702	
Y8	CRYSTAL, Quartz, 57.525 mc	19658-5752	
Y9	CRYSTAL, Quartz, 58.025 mc	19658-5802	
Y10	CRYSTAL, Quartz, 58.525 mc	19658-5852	
Y11	CRYSTAL, Quartz, 59.025 mc	19658-5902	
Y12	CRYSTAL, Quartz, 59.525 mc	19658-5952	
Y13	CRYSTAL, Quartz, 60.025 mc	19658-6002	

¹Reference designations are abbreviated; for complete identification, prefix with applicable assembly designation.

TABLE 5-2. PARTS LIST (Cont.)

Reference Designation ¹	Description	ARC Part No.	Manufacturer & Part No.
A1A1, R-F ASSEMBLY (Cont.)			
Y14	CRYSTAL, Quartz, 60.525 mc	19658-6052	
Y15	CRYSTAL, Quartz, 61.025 mc	19658-6102	
Y16	CRYSTAL, Quartz, 61.525 mc	19658-6152	
Y17	CRYSTAL, Quartz, 62.025 mc	19658-6202	
Y18	CRYSTAL, Quartz, 62.525 mc	19658-6252	
Y19	CRYSTAL, Quartz, 9.950 mc	19657-9950	
Y20	CRYSTAL, Quartz, 10.050 mc	19657-1005	
Y21	CRYSTAL, Quartz, 10.150 mc	19657-1015	
Y22	CRYSTAL, Quartz, 10.250 mc	19657-1025	
Y23	CRYSTAL, Quartz, 10.350 mc	19657-1035	
Y24	CRYSTAL, Quartz, 10.450 mc	19657-1045	
Y25	CRYSTAL, Quartz, 10.550 mc	19657-1055	
Y26	CRYSTAL, Quartz, 10.650 mc	19657-1065	
Y27	CRYSTAL, Quartz, 10.750 mc	19657-1075	
Y28	CRYSTAL, Quartz, 10.850 mc	19657-1085	
Y29	CRYSTAL, Quartz, 10.900 mc	19657-1090	
Y30	CRYSTAL, Quartz, 10.800 mc	19657-1080	
Y31	CRYSTAL, Quartz, 10.700 mc	19657-1070	
Y32	CRYSTAL, Quartz, 10.600 mc	19657-1060	
Y33	CRYSTAL, Quartz, 10.500 mc	19657-1050	
Y34	CRYSTAL, Quartz, 10.400 mc	19657-1040	
Y35	CRYSTAL, Quartz, 10.300 mc	19657-1030	
Y36	CRYSTAL, Quartz, 10.200 mc	19657-1020	
Y37	CRYSTAL, Quartz, 10.100 mc	19657-1010	
Y38	CRYSTAL, Quartz, 10.000 mc	19657-1000	
Z1	FILTER ASSEMBLY	22146	
A1A2, TUNER ASSEMBLY, ARC-22367-0028			
CR1 CR2	SEMICONDUCTOR DEVICE, Diode SEMICONDUCTOR DEVICE, Diode, same as CR1	23037	HUG HD6226
J1	PLATE, Contact	19336	
J2	PLATE, Contact	19669	
J3	PLATE, Contact, same as J1		
J4	PLATE, Contact, same as J2		
K1	RELAY, Armature	19665	
K2	RELAY, Armature, same as K1		
MP1	PLATE ASSEMBLY	19443	
MP2	PLATE ASSEMBLY, same as MP1		
A2, POWER SUPPLY, ARC-27615			
C1	CAPACITOR, Fixed, electrolytic, 1 μ f \pm 20 per cent, 35 vdcw	21485-9101	SPR 150D105X0035A2
C2	CAPACITOR, Fixed, same as C1		
C3	CAPACITOR, Fixed, electrolytic, 60 μ f \pm 75 -15 per cent, 50 vdcw	23943	FML F310
C4	CAPACITOR, Fixed, electrolytic, 2 μ f \pm 20 per cent, 150 vdcw	8851	SPR 110D205X0150G0
C5	CAPACITOR, Fixed, electrolytic, 2 sect., 15 μ f ea., 450 vdcw	13928	

¹Reference designations are abbreviated; for complete identification, prefix with applicable assembly designation.

TABLE 5-2. PARTS LIST (Cont.)

Reference Designation ¹	Description	ARC Part No.	Manufacturer & Part No.
A2, POWER SUPPLY, ARC-27615 (Cont.)			
C6	CAPACITOR, Fixed, metalized paper, 2 μ f \pm 20 per cent, 600 vdcw	24446-9201	SPR 121P20506T25
C7	CAPACITOR, Fixed, ceramic, 0.001 μ f +100 -0 per cent, 500 vdcw	8625-9104	
C8	CAPACITOR, Fixed, same as C7		
C9	CAPACITOR, Fixed, same as C7		
C10	CAPACITOR, Fixed, same as C7		
C11	CAPACITOR, Fixed, same as C7		
C12	CAPACITOR, Fixed, electrolytic, 47 μ f \pm 20 per cent, 50 vdcw	8924-0470	SPR 109D476X0050F2
CR1	SEMICONDUCTOR DEVICE, Diode, type 1N1560	20474	
CR2	SEMICONDUCTOR DEVICE, Diode, same as CR1		
CR3	SEMICONDUCTOR DEVICE, Diode, same as CR1		
CR4	SEMICONDUCTOR DEVICE, Diode, same as CR1		
CR5	SEMICONDUCTOR DEVICE, Diode, same as CR1		
CR6	SEMICONDUCTOR DEVICE, Diode, same as CR1		
CR7	SEMICONDUCTOR DEVICE, Diode, same as CR1		
CR8	SEMICONDUCTOR DEVICE, Diode, same as CR1		
CR9	SEMICONDUCTOR DEVICE, Diode, same as CR1		
CR10	SEMICONDUCTOR DEVICE, Diode, type 1N2835	26722-0750	
CR11	SEMICONDUCTOR DEVICE, Diode, same as CR10		
J1	CONNECTOR ASSEMBLY	27274	
L1	REACTOR, 1.2 mh	21429	CMPB L2254
Q1	TRANSISTOR, Type 2N174	27527	
Q2	TRANSISTOR, same as Q1		
R1	RESISTOR, Fixed, comp, 2,700 ohms \pm 5 per cent, 2 w	203-0272	AB HB2725
R2	RESISTOR, Fixed, same as R1		
R3	RESISTOR, Fixed, comp, 33 ohms \pm 5 per cent, 1 w	202-0330	AB GB3305
R4	RESISTOR, Fixed, same as R3		
R5	RESISTOR, Fixed, comp, 10,000 ohms \pm 5 per cent, 1 w	202-0103	AB GB1035
R6	RESISTOR, Fixed, comp, 220,000 ohms \pm 5 per cent, 1 w	202-0224	AB GB2245
R7	RESISTOR, Fixed, same as R6		
T1	TRANSFORMER, Toroidal	27602	

¹Reference designations are abbreviated; for complete identification, prefix with applicable assembly designation.

TABLE 5-2. PARTS LIST (Cont.)

Reference Designation ¹	Description	ARC Part No.	Manufacturer & Part No.
A3, MODULATOR, ARC-27530			
C1	CAPACITOR, Fixed, ceramic, 0.0068 μ f +100 -0 per cent, 500 vdcw	8626-9684	SPR 150D127X0010R2
C2	CAPACITOR, Fixed, electrolytic, 120 μ f \pm 20 per cent, 10 vdcw	8919-0121	
CR1	SEMICONDUCTOR DEVICE, Diode, type 1N2498	22298-0100	
J1	CONNECTOR ASSEMBLY	19952	
Q1	TRANSISTOR, Type 2N375	22289	
Q2	TRANSISTOR, Same as Q1		
Q3	TRANSISTOR, Type 2N270	22635	
R1	NOT USED		
R2	RESISTOR, Fixed, comp, 5,600 ohms \pm 5 per cent, 2 w	203-0562	AB HB5625
R3	RESISTOR, Fixed, comp, 20,000 ohms \pm 5 per cent, 1 w	202-0203	AB GB2035
R4	NOT USED		
R5	RESISTOR, Fixed, ww, 14 ohms \pm 3 per cent, 3 w	209-0140	DABU RS2-140H
R6	RESISTOR, Fixed, comp, 47 ohms \pm 5 per cent, 1/2 w	201-0470	AB EB4705
R7	RESISTOR, Fixed, comp, 10 ohms \pm 5 per cent, 1/2 w	201-0100	AB EB1005
R8	RESISTOR, Variable, comp, 500 ohms \pm 10 per cent	8705	AB JLU-5011-SD4040L
R9	RESISTOR, Fixed, comp, 5,100 ohms \pm 5 per cent, 1/2 w	201-0512	AB EB5125
R10	RESISTOR, Fixed, comp, 470 ohms \pm 5 per cent, 1/2 w	201-0471	AB EB4715
R11	RESISTOR, Fixed, ww, 4 ohms \pm 3 per cent, 25 w	340-9401	DABU RH25-4H
T1	TRANSFORMER, Modulation, audio frequency	27507	
T2	TRANSFORMER, Audio driver	26142	UNT AR-816
T3	TRANSFORMER, Audio	26141	UNT AR-817
A4, CHASSIS ASSEMBLY			
C1	CAPACITOR, Fixed, ceramic, 0.001 μ f +100 -0 per cent, 500 vdcw	8625-9104	
CR1	SEMICONDUCTOR DEVICE, Diode	19663	HUG 1N90
CR2	SEMICONDUCTOR DEVICE, Diode	23037	HUG HD6226
CR3	SEMICONDUCTOR DEVICE, Diode	8931-0201	TI 1N2069
J1	CONNECTOR ASSEMBLY	27276	
J2	CONNECTOR ASSEMBLY	27473	
J3	CONNECTOR, Receptacle, electrical	21984	AMP 94-42530-2
J4	CONNECTOR, Receptacle, electrical, type UG-625/U	15185	
J5	CONNECTOR, Same as J4		
J6	JACK, Tip, ivory	8803-5410	JON 105-611
J7	CONNECTOR ASSEMBLY	28040	

¹Reference designations are abbreviated; for complete identification, prefix with applicable assembly designation.

TABLE 5-2. PARTS LIST (Cont.)

Reference Designation ¹	Description	ARC Part No.	Manufacturer & Part No.
A4, CHASSIS ASSEMBLY (Cont.)			
K1	RELAY, Armature, 28 v	29159	
K2	RELAY, Armature, 28 v	14485	
K3	RELAY, Armature, 28 v	12588	
P1	CONNECTOR ASSEMBLY	27253	
P2	CONNECTOR ASSEMBLY	27489	
P3	PIN, Plug	7934	
Q1	TRANSISTOR	27527	MOTR 2N174
Q2	TRANSISTOR, Same as Q1		
R1	RESISTOR, Fixed, comp, 4,700 ohms ± 10 per cent, 1/4 w	200-0472	AB CB4721
R2	RESISTOR, Fixed, same as R1		
R3	RESISTOR, Variable, comp, 500 ohms ± 10 per cent	8705	AB JLU-5011-SD4040L

¹Reference designations are abbreviated; for complete identification, prefix with applicable assembly designation.



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